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ABSTRACT

This report summarizes the results of an evaluation of the Emergency School Aid Act (ESAA) Basic and Pilot Programs during their second year of program operations, 1974-75. Also presented are achievement data for a longitudinal sample of students participating in the first two years of ESAA operations, 1973-74 and 1974-75. Although two yeary of evaluation results indicate that the ESAA resource allocation process was successful in targeting ESAA funds to needy school districts, schools, and students, there was little evidence that those funds had a positive impact on student achievement or school climate. There was some suggestion in the data that schools similar to ESAA-funded schools (i.e., control schools) may have employed other sources of funds (federal or state) to provide ESAA-like services to their students, making the achievement and climate comparisons between the ESAA-funded and non-ESAA-funded schools difficult to interpret. When these two sets of schools are combined for analysis purposes, policy-relevant relationships emerge with regard to particular school activities and associated school climate and achievement gains. Should the relationships found in this study be cross-validated by year three data, clear guidance for ESAA program improvement will be forthcoming. (RC)

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The Second Year of Emergency School Aid Act (ESAA) Implementation

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EMERGENCY SCHOOL AID ACT (ESAA) IMPLEMENTATION

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Also gratefully acknowledged are the recommendations and comments of the ESAA Evaluation National Advisory Panel, whose members are listed on the preceding page of this report; these panel members played an active role in the study, making major substantive contributions as well as helping to provide broad perspective in interpretations of the study's findings. The Presidentially appointed National Advisory Council on Equality of Educational Opportunity also reviewed an earlier draft of this report and made a number of highly useful suggestions for strengthening its discussion of certain issues.

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The views reflected in this document are not necessarily the views of the U.S. Office of Education. Furthermore, no endorsement of the report by any individual, agency, or panel acknowledged above is implied.

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OVERVIEW

This report summarizes the results of an evaluation of the Emergency School Aid Act (ESAA) Basic and Pilot Programs during their second year of program operations, 1974-75. (An evaluation of the first year of operations was reported earlier.*) The present document also presents achievement data for a longitudinal sample of students participating in the first two years of ESAA operations, 1973-74 and 1974-75.

The ESAA Basic and Pilot Programs provide grants to elementary and secondary school districts for local projects designed to deal with minority-group isolation. The Basic Program is a desegregation assistance program designed to (a) encourage the elimination of minority-group isolation, (b) help meet special needs incident to the elimination of segregation and discrimination, and (c) help overcome educational disadvantages associated with minority-group isolation. In contrast to the Basic Program, the ESAA Pilot Program is essentially a compensatory education program for students enrolled in minority-impacted schools (i.e., schools with 50% or greater minority enrollment).

The national evaluation of the Basic and Pilot Programs was designed to determine the cumulative impact of ESAA programs in terms of the Act's objectives over a period of three school years. The evaluation report associated with the first year of FSAA (1973-74) was essentially a progress report on initial implementation of the program. The present Year Two Report provides a more meaningful picture of program effects under relatively stable operating conditions. Nevertheless, results and conclusions reported are still somewhat tentative, pending subsequent verification in the cross-sectional data for Year Three, and in the cumulative data across all three years.

The remaining paragraphs in this overview summarize the key findings of the Year Two evaluation in terms of the needs of ESAA students and schools, relationships between needs and resource allocations, ESAA program impact, and the relationships between outcome measures and certain program characteristics and approaches.

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*The First Year of Emergency School Aid Act (ESAA) Implementation. System Development Corporation, TM-5236/008/00, September 15, 1975.

Needs of Students and Schools in ESAA Districts

As was the case in 1973-74, in both the Basic (Elementary and Secondary) and Pilot (Elementary) sample schools there was indisputable evidence of the need for reading and math compensatory education programs. On the basis of students' scores on standardized reading and mathematics achievement tests, the greatest need for compensatory education programs (i.e., the lowest achievement) was found in minority-isolated (Pilot) schools, where school averages for the pretest scores ranged from the 13th to the 25th percentile. However, acute needs were also evident in desegregated (Basic) secondary schools (21st to 34th percentile) and elementary schools (19th to 37th percentile). These results suggest that roughly 66%-87% of our nation's students were achieving at a higher level than were the evaluation sample students.

In general, minority students, whether in minority-isolated or desegregated schools, showed a greater need for compensatory education services than did non-minority students. However, non-minority students in minority-isolated schools had achievement levels more similar to their minority counterparts in those same schools than to their non-minority peers in desegregated schools.

Measures of students' perceptions of race-related climate indicated that minority students perceived themselves as less favorably treated by school administrators than did the non-minority students. Though this finding may not necessarily reflect the actual quality of student-administrator interactions, it at least suggests an area toward which ESAA programs might fruitfully direct some of their efforts.

Relationships Between Resource Allocations and Needs

The ESAA resource allocation and the resource-to-service translation processes seem to be effective in providing services to needy students. Evidence from the first two years of program implementation indicates that the ESAA resource allocation process successfully targeted funds to districts with severe academic needs; those districts, in turn, reallocated their ESAA funds to needy schools. There is also evidence that the recipient schools translated their ESAA funds into services appropriate for their students, and provided those services to needy students.

Significant relationships were also found between ESAA services and student needs in the area of intergroup/cultural enrichment. For example, in Basic Elementary and Secondary sample schools, students with lower socioeconomic status (as indicated by possessions in the home) received larger amounts of exposure to cultural enrichment activities. In addition, students whose primary language at home was not English received significantly greater exposure to ESL (English as a second language) or bilingual instruction than students from English-speaking homes.

ESAA Program Impact

As in Year One, no significant differences between treatment (ESAA funded) and control (non-ESAA) schools in achievement or school climate gains were found in Year Two for either the Basic or Pilot program. There was some evidence of ESAA impact on the achievement of elementary students receiving ESAA Basic program services for two years, but the treatment-control differences were too small to be statistically significant.

The lack of evidence of overall program impact is not particularly surprising, given the wide variations among local ESAA sites with respect to program priorities, resources, and approaches. There seems little doubt that the success of ESAA programs in some districts was obscured in the overall analyses by failures in other districts. Furthermore, only small differences between ESAA-funded and matched non-ESAA-funded schools were found in the total resources allocated to activities that might logically have been expected to influence student achievement or school climate.

As in the first year of ESAA, there was little evidence of reduction in minority-group isolation in the ESAA districts. Data indicate that most of the sample ESAA districts had reduced minority-group isolation to a low level prior to initial ESAA funding, and thus had relatively little opportunity for further improvement during the evaluation period. There is also evidence that districts receiving ESAA grants had achieved a higher level of desegregation, on the average, than districts at large across the country. This finding suggests that, quite appropriately, the districts' desegregation status, as well as their demonstrated needs incident to desegregation, were taken into account in the award of ESAA grants.

Relationships Between Program Characteristics and Outcomes

For this set of analyses, data from treatment and control schools were combined, since the purpose was to determine what program features were associated with successful outcomes, regardless of funding sources for those programs. The results, though somewhat tentative, suggest a number of important interactions that have policy implications for ESAA and similar educational programs.

With respect to achievement test scores in the Basic and Pilot Elementary samples (treatment plus control schools), larger reading and mathematics gains occurred in sites with higher regular (district-supported) per-student expenditures.

Similar though somewhat weaker relationships were found between total per-student expenditures and achievement. Also, in the Pilot Elementary sample, larger mathematics gains were associated with greater supplemental expenditures for mathematics instruction, and were also (though less strongly) related to greater emphasis on drill and practice procedures in math instruction. In the Basic Elementary sample, there was a tendency for larger reading gains to be associated with more recent teacher inservice training in reading instruction.

Several significant relationships were found between achievement scores and program characteristics in the Basic Secondary sample. For example, larger mathematics test gains were associated with larger amounts of instructional time in mathematics, with more highly trained mathematics teachers, and with smaller pupil-to-teacher ratios. Also at the secondary level, larger reading gains were made by students in districts that undertook more activities designed to facilitate and support school desegregation. This latter finding is particularly important because of its similarity to relationships found in the Year One data at the elementary level.

Policy-relevant relationships were also found with respect to the school climate outcome measures. At the elementary level (Pilot and Basic samples), certain climate indicators showed greater gains in schools where students expressed a liking for school and where they perceived their teachers as supportive. In the Basic Secondary sample, less feeling of alienation was reported by students in schools where the sample teachers reported positive attitudes toward desegregation.

In summary, although two years of evaluation results indicate that the ESAA resource-allocation process was successful in targeting ESAA funds to needy school districts, schools, and students, there is little evidence that those funds had a positive impact on student achievement or school climate. There is some suggestion in the data that schools similar to ESAA-funded schools (i.e., control schools) may have employed other sources of funds (federal or state) to provide ESAA-like services to their students, making the achievement and climate comparisons between the ESAA-funded and non-ESAA-funded schools difficult to interpret; data from the third evaluation year may help to clarify this point. In any event, when these two sets of schools are combined for analysis purposes, policy-relevant relationships emerge with regard to particular school activities and associated school climate and achievement gains. Should these relationships (described in previous paragraphs of this overview) be cross-validated by Year Three data, clear guidance for ESAA program improvement will be forthcoming.

CHAPTER I

INTRODUCTION

In conjunction with and under contracts from the U.S. Office of Education, System Development Corporation (SDC) is conducting an evaluation of two closely related programs authorized under the Emergency School Aid Act (ESAA): the Basic and Pilot Grants programs. Basic Grants are awarded to eligible school districts to reduce minority-group isolation, to meet the special needs incident to the elimination of segregation and discrimination, and/or to assist elementary and secondary school children in overcoming the educational disadvantages associated with minority-group isolation. Basic Grants may be awarded to any Local Education Agency (LEA) that (a) is implementing a desegregation plan or has adopted and will implement such a plan if assistance is made available; or (b) has a plan to enroll non-resident children in its schools to reduce minority-group isolation; or (c) has no desegregation plan but has minority-group student enrollment exceeding 50 percent, provided that the LEA establishes or maintains at least one integrated school.

In contrast to Basic Grants, Pilot Project Grants are awarded to LEAs for unusually promising projects designed to overcome the adverse effects of minority-group isolation by improving the academic achievement of children in minority-isolated schools. To be eligible for a Pilot Grant, an LEA must be implementing a desegregation plan or a plan to reduce minority-group isolation that would make it eligible for a Basic Grant.* In addition, at least 15,000 minority-group students must be enrolled in the schools of the LEA, or minority-group students must constitute more than 50 percent of the total LEA enrollment.

The combined Basic/Pilot evaluation involves the collection of data over a period of three school years: 1973-74, 1974-75, and 1975-76. A previous report** described the evaluation results for the first year (1973-74); a brief summary of those findings is provided in Section C of this chapter. The present report describes evaluation results for the second evaluation year (1974-75), and also discusses longitudinal findings for the combined first two years. A subsequent report will present results for 1975-76, as well as cumulative trends over the three-year period.

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*Another authorized basis for granting Pilot awards is that the district applies for a grant to establish an Integrated School Project. However, no grants of this category were included in the present evaluation.

**The First Year of Emergency School Aid Act (ESAA) Implementation. System Development Corporation, TM-5236/008/00, September 15, 1975.

For the Year One Report, the only available criterion measures of program success were students' scores on standardized achievement tests in reading and mathematics. In Year Two, as reflected in the present report, increased emphasis was placed on desegregation-related activities and outcome measures. Specifically, achievement test scores are supplemented by indicators of desegregation-related school climate. (The development and contents of the School Climate Questionnaire are discussed in Chapter IV of this report. A major objective of the School Climate Questionnaire is to assess students' perceptions of the degree of discrimination in the schools.) In addition, efforts were made to use a third type of program outcome measure based on minority-group isolation data collected by the Office of Civil Rights; unfortunately, as described in Chapter VIII of this report, difficulties were encountered that greatly limited the usefulness of the minority-group isolation data in generating indices of program impact.

It is anticipated that this report may have several different audiences, each with its own particular interests and knowledge. These potential audiences include Congress and the Office of Education, civil rights groups and other interested citizen groups, state and district program administrators, educational researchers, and evaluation specialists. Policy issues assumed to be of direct concern to these various audiences were defined by the U.S. Office of Education in 1972 and 1973, in the form of a list of evaluation objectives specified in the Requests for Proposals for the Pilot and Basic program evaluations. A summary of these objectives is given below in Section B.1, which also indicates the extent to which each objective is addressed in the present Year Two Report.

Because the primary goal of the evaluation is to inform decision-makers, rather than to add to the literature on evaluation/research methodology, the major focus throughout the report is on results, not techniques. Excessive procedural details have been avoided and, where possible, major findings have been highlighted. Many of the data tables have been relegated to the appendix and are referred to in the appropriate pages of the text.

The remainder of this chapter provides a brief overview of the ESAA program legislation and funding, the evaluation objectives and methodology, and the Year One evaluation findings, and discusses certain limitations of the present report. Chapter II describes the rationale and methodology of the evaluation sampling procedures and presents data concerning the representativeness of the resulting samples. Chapters III through VII describe the school programs and funding allocations, the community/district context within which the sample programs operated, and the sample students enrolled in these programs. Chapter VIII focuses specifically on the desegregation plans and activities of the sample districts and examines evidence concerning the amount of district desegregation that may be associated with ESAA program implementation. Chapters IX and X discuss gains in achievement test scores and in school climate measures during the 1974-75 school year, as well as cumulative achievement test gains over the first two years (1973-74 and 1974-75); in addition, these chapters attempt to relate these gains to the experimental variable (ESAA funding) and to a variety of other student, program, and contextual dimensions. Finally, Chapter XI presents an overall summary of the major findings and conclusions for Year Two, as well as longitudinal results for Years One and Two.

A. OVERVIEW OF ESAA PROGRAM LEGISLATION AND FUNDING

The Emergency School Aid Act (ESAA) was enacted into law in June 1972 to provide elementary and secondary school districts with financial assistance to (1) meet the special needs incident to the elimination of minority-group segregation and discrimination; (2) encourage the voluntary reduction, elimination, or prevention of minority-group isolation; and (3) aid children in overcoming the educational disadvantages of minority-group isolation (P.L. 92-318, Sec. 702 (b)). While the Act, as amended in 1974 (P.L. 93-380, Sec 641), authorized the appropriation of $1 billion for fiscal year 1973 and a similar amount for fiscal years 1974, 1975, and 1976, actual appropriations have amounted to $228 million, $234 million, $215 million, and $215 million for fiscal years 1973, 1974, 1975, and 1976 respectively. Since funds are appropriated for obligation and expenditure during the fiscal year succeeding the year of appropriation, the major thrust of the Act began during school year 1973-74 and will continue at least through school year 1976-77.

ESAA originally authorized eight subprograms; three of these were State apportionment programs (Basic Grants, Pilot Grants, and Nonprofit Organization Grants) and the remaining five (Bilingual Education, Educational Television, Metropolitan Area, Special Projects, and Evaluation) were discretionary grant programs. The Metropolitan Area Projects subprogram and its 3-4% reservation from the annual appropriation were eliminated from the program by Section 642 of P.L. 93-380 in August, 1974. Since that amendment, and in accordance with status and regulation, 87% of the annual appropriation is reserved for the state-apportioned programs--Basic Grants 64%, Pilot Programs 15%, and Nonprofit Organization Grants 8%. The remainder of the annual ESAA appropriation is reserved as follows for the discretionary programs: Bilingual Education, not less than 4%; Educational Television Project, 3-4%; Special Projects, 5%; and Evaluation awards, up to 1%.

The state-apportioned sums appropriated annually, pursuant to the Act, are divided among states on the basis of the ratio of their number of minority-group school-aged children to the number of such children in all states. Local school districts compete for the funds apportioned to their state through grant applications to their HEW Regional Office. In applying for an ESAA grant, a local school district must demonstrate that it has needs related to the Act's objectives and that it has designed a program based on authorized activities that shows promise of achieving one or more of the Act's objectives.

B. DESCRIPTION OF ESAA EVALUATION

The Act authorizes a national evaluation of its programs and sets aside up to 1% of its annual appropriation to support such activities. As initially designed by the U.S. Office of Education and conducted by System Development Corporation, the evaluation effort focuses on an integrated evaluation of the ESAA Basic and Pilot programs. The remainder of this section summarizes the major evaluation objectives for both programs and describes the general methodology being applied to meet those goals.

1. EVALUATION OBJECTIVES

The overall evaluation has several major objectives, some of which involve analyses of data collected within a single school year, while others involve longitudinal analyses and comparisons of data collected over two or three years. Certain other objectives involve data collected in special studies for which separate reports are being prepared. The key study objectives are summarized below; each objective is accompanied by a brief note concerning the extent to which that objective is addressed in the present Year Two Report.

- Determination of the short- and long-term national impact of ESAA in terms of the Congressionally authorized program objectives, namely, reduction in minority-group isolation, elimination of discrimination, and improvement of basic skills in elementary and secondary schools. The Year One Report covered only the 1973-74 school year, and only a single type of outcome measure: performance on standardized achievement tests. The present Year Two Report includes impact analyses for the 1974-75 school year on school climate as well as on achievement. It also includes two-year (1973-74 and 1974-75) longitudinal analyses of program impact on achievement. Minority-group isolation is also addressed; however, an attempt to use U.S. Office of Civil Rights data to compare reduction of minority-group isolation in ESAA-funded and non-ESAA districts proved to be only partially successful, since the sample of districts on which OCR collected data was greatly reduced in 1974-75.

- Identification and description of the needs of students in or from minority-isolated schools; the characteristics of local programs, including the relationships between student needs and resource allocations in the sample districts; and the interrelationships among student needs, program characteristics, and program impact. This objective is directly addressed in the present report.

- Documentation and dissemination of information relating to unusually successful local programs and to program components that appear related to success. In-depth data on successful sites are the subject of a separate report now in preparation.

- Investigation of the relationship among regular school expenditures, supplemental ESAA expenditures, and program impact, in an attempt to determine local program cost-effectiveness and the minimum supplemental expenditures necessary to ensure some measure of program success. This objective is directly addressed in this report.

2. GENERAL METHODOLOGY

The combined Basic/Pilot evaluation involves the collection of data over a period of three years, beginning with the 1973-74 school year and ending with the 1975-76 school year. This multi-year design allows analyses of cumulative program impact and of possible fadeout or consolidation of program impact after students are transferred out of the ESAA activities. In addition, it provides an opportunity to assess program maturation effects (e.g., greater program impact on each successive wave of new students in the second and third years of operation.)

For both Pilot and Basic programs, standardized achievement tests are administered at the beginning and end of each school year to assess gains made in reading and math by a sample of students participating in the ESAA projects. The same tests are given to samples of students in both treatment (ESAA-funded) and control (non-ESAA) schools. To select the treatment and control schools, pairs of similar schools were identified in the sample districts; one member of each pair was randomly assigned to the treatment condition and the other to the control condition. Sample students were then drawn randomly across classes in each sample school at the grade levels of interest. Thus, the experimental or treatment variable in this study is the awarding or denial of ESAA Pilot or Basic funds to a school. This emphasis on matched schools within districts makes it possible to hold important district factors common in paired comparisons of treatment and control schools and to achieve a true experimental design* by random assignment of each pair of schools to the treatment and control conditions.

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*The term "true experimental design" is used here in the sense described by Campbell and Stanley (1963) as Design 4, "The Pretest-Posttest Control Group Design." That design uses equivalent groups (treatment and control) as achieved by randomization. It should be noted, however, that the experimental design applies, in the present study, only to school-level comparisons of outcomes in paired treatment and control schools (i.e., "impact analyses"). All other analyses relating program variables to each other, to pretest performance, or to pretest-posttest changes, are at best quasi-experimental, since randomization procedures were not applied to the distribution of any program variables (other than ESAA funding) among the sample districts, schools, or students. It should also be noted that only the sample schools' ESAA Pilot and Basic program funds were controlled in this study, not total program funds or even total supplemental program funds.

Because of interest in evaluating ESAA programs at both the elementary and secondary levels, schools at both levels are included in the Basic Grant program sample. Too few Pilot awards were given at the secondary level to include high schools in the Pilot sample. Grade levels included in the evaluation are grades 3, 4, and 5 (elementary) and 10, 11, and 12 (secondary). The use of three successive grades at each grade level allows individual sample students to be followed longitudinally for up to three years, depending on their grade placement at the start of the evaluation. To be eligible for inclusion in the study, schools must have sufficiently large numbers of ESAA participants (or ESAA-eligible students, in the case of control schools) to allow for attrition over the evaluation period; toward this end, larger samples were initially drawn at grades 3 and 10 than at other grades to allow those samples to be followed for three years.

Two other major outcome measures planned for the multi-year evaluation consist of data on perceived discrimination (school climate) and on reduction of minority-group isolation. School climate data were not available in Year One, but are included in the present report for Year Two. Minority-group isolation is primarily a district-level rather than a school-level variable, which makes it of little use in school-level impact analyses. At the district level, isolation data are available for districts in the 1974-75 evaluation sample, but not for any meaningful universe or sample of comparable non-ESAA districts. Therefore, the major use of the minority-group isolation data in the Year Two Report is in attempts to relate district or program characteristics to differences in minority-group isolation among the sample districts.

In addition to the outcome measures, questionnaires and other recording forms are used once each year to obtain extensive data on the school programs themselves (in both treatment and control schools) and on sample students. Near the end of each school year, a battery of questionnaires is administered to superintendents, district business managers, district ESAA coordinators, principals, teachers, and students in the sample. These questionnaires provide data on district, school, and classroom minority-group isolation, program operation, resource allocation, and student and staff background characteristics.

Finally, student activity logs are used to record the amount of time that a student is exposed to different types of educational experiences (e.g., peer tutoring in math, cultural enrichment programs, etc.). The logs provide a cumulative record of each student's interactions with the educational system, with emphasis on compensatory and desegregation-related activities of the sort presumably stressed by ESAA projects.

Data analyses, designed to focus on the major evaluation goals described above, include determinations of pretest-posttest changes in outcome measures, to assess overall gains across both treatment and control schools; comparisons of pretest-posttest gains between treatment and control schools in the matched pairs, to evaluate the impact of the experimental variable

(ESAA funding); comparisons of outcomes associated with different intervention approaches; ranking of local programs with respect to impact, to identify particularly successful projects; and analyses of relationships among program features, student characteristics, and program impact. In connection with the second-year evaluation, school expenditure data are analyzed in relation to impact data to determine the minimum supplemental expenditures associated with program success and to identify local project components that differentiate successful from unsuccessful projects.

C. SYNOPSIS OF YEAR ONE FINDINGS

The first-year evaluation samples (treatment plus control) included 74 Basic Elementary schools, 28 Basic Secondary schools, and 55 Pilot Elementary schools in 82 ESAA-funded school districts. Major findings of the study were as follows:

- Sample students showed clear academic needs, as evidenced by their pretest performance on the achievement tests in reading and mathematics. Though performance varied across grade levels and across evaluation samples, all of the mean scores were well below the 50th percentile, with the bulk lying between the 16th and 37th percentiles. There was also considerable evidence that most sample students were socioeconomically disadvantaged. Pilot sample students had lower pretest scores than Basic Elementary sample students, but this difference essentially disappeared when differences in the racial/ethnic composition of the samples were taken into account. Minority students in desegregated schools scored at approximately the level of those in minority-isolated schools (e.g., around the 15th to the 30th percentile), while nonminority students in desegregated schools typically averaged between the 40th and 50th percentiles.

- Investigation of program resource allocations indicated that the ESAA grant award process led to the selection of needy districts, that those districts selected needy schools for ESAA participation, and that the schools provided services to needy students through the local ESAA programs. Furthermore, a consistent relationship was found between students' achievement pretest scores and amount of exposure given to students in different areas of academic content. Thus, it appears that the ESAA programs at the federal, LEA, school, and classroom levels were appropriately focusing their resource allocations in the areas of greatest student needs.

- Sample students as a whole (i.e., both treatment and control students in Basic and Pilot districts) made significant achievement gains over the school year, but were still below the national norms (median) on the posttest. However, these sample students appeared to have made larger achievement gains than would have been predicted on the basis of national norms for students having the same pretest deficiencies. One possible inference was that the ESAA funds, added to the general pool of dollars available to the sample districts, allowed the districts to increase the total supplemental budgets of control schools as well as treatment schools (e.g., by giving more of the Title I funds to the control schools), and thereby helped to enhance achievement in both treatment and control schools. It was felt that further evidence was needed to substantiate or disprove this explanation.

- Differences in total per-pupil funding for treatment (ESAA-funded) and control (non-ESAA) schools were relatively small. A statistically significant difference in favor of treatment schools was found for Basic Elementary and Secondary schools, but not for the Pilot sample. Only about a third of the Basic treatment schools had a total per-pupil funding level exceeding that for the paired control schools by more than 5%. There was some evidence that this watering-down of funding differences may have resulted from the sample districts' allocation of other compensatory funds (e.g., Title I) to the control (non-ESAA funded) schools.

- With few exceptions, program characteristics and availability of resources for treatment schools were not significantly different from those for control schools.'

- Not surprisingly, in view of the brief period of program operation between pretest and posttest (5.5 months, on the average), the relatively small treatment-control differences in funding levels and program characteristics, and the wide variations in resources and program approaches among ESAA schools, no evidence was found of overall differences in achievement gains for treatment (ESAA-funded) and control (non-ESAA) schools.

- Quasi-experimental evidence, based on comparisons among sample schools (regardless of treatment-control designation), revealed significant relationships between several program variables and students' achievement gains. The Pilot sample showed a positive relationship between level of supplemental funding for reading instruction and achievement scores in both reading and math; that same sample also showed lower pupil/teacher ratios and higher total school enrollments associated with higher mathematics test scores.

  In some Basic Elementary grade levels, schools that had a higher frequency of school activities related to the desegregation process (e.g., frequency of public meetings, staff meetings concerned with interracial interactions) also tended to have higher achievement scores in both reading and mathematics. Related to this finding, favorable actions and attitudes of district administrators toward desegregation were found associated with positive (pro-integration) teacher attitudes on desegregation-related issues. Furthermore, a greater degree of positive interracial activity was found in districts and schools that had favorable teacher and superintendent attitudes toward integration and greater frequency of desegregation-related district activities. Finally, more positive attitudes toward school and toward their own educational futures were found in students in schools with greater amounts of student interracial activity, more positive teacher and superintendent attitudes on desegregation issues, and more frequent desegregation-related district and school activities.

A pattern of positive associations was found in Basic Secondary schools between the amount of time spent in reading instruction and students' reading achievement scores. This pattern was strongest for students in the lowest quartile on pretest performance.

D. LIMITATIONS OF PPESENT REPORT

This Year Two Report comes considerably closer than the earlier Year One Report to meeting the full range of study objectives summarized above in Section B. It includes two-year longitudinal data as well as one-year cross-sectional data on students' achievement gains. In addition, it contains one-year impact data on school climate (perceived discrimination), an outcome variable not available in the first evaluation year. Nevertheless, several important limitations in the scope of the Year Two Report should be noted.

First, this evaluation does not cover all types of subprograms funded under the Emergency School Aid Act, or, consequently, all objectives covered by those various subprograms. Seven different subprograms are currently authorized under ESAA; three of these are State-apportioned programs (Basic Grants, Pilot Grants, and Nonprofit Organization Grants) and the remaining four (Bilingual Education, Educational Television, Special Projects, and Evaluation) are discretionary grant programs.*

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*The Bilingual Education program provides funds to Local Education Agencies for bilingual programs designed to equalize the educational opportunity of minority-group children from environments where the dominant language is other than English. Educational Television contracts and grants are awarded to public and private nonprofit agencies, institutions, or organizations for the development and airing of integrated children's television programs of cognitive and affective educational values. Special Project grants and contracts are made to or with State and Local Education Agencies and other public agencies and organizations, to conduct special programs and projects that are consistent with the purposes of the Act. The final discretionary program, Evaluation, authorizes grants to, and contracts with, State Education Agencies, institutions of higher education, and private organizations for purposes of evaluating programs authorized by the Act. Basic Grants and Pilot Grants are funds to public and private nonprofit agencies, institutions, or organizations to carry out programs designed to support Local Education Agency development or implementation of a plan, program, or activity for the reduction or elimination of minority-group isolation.

Only the Basic and Pilot subprograms are included in the present evaluation, which, accordingly, should not be viewed as an overall assessment of the total ESAA program. Although these two subprograms account for 79% of the total ESAA expenditures, other ESAA subprograms are also of vital concern to USOE, which is currently evaluating them or plans to evaluate them in the near future.

A second major limitation of this report is that there are both methodological and philosophical difficulties in attempting any meaningful overall evaluation of a national program, when that program contains local projects as diverse in specific objectives, in approaches taken to reach the objectives, and in magnitude and quality of resources applied to the objectives, as the projects in the ESAA Basic and Pilot programs. There is a strong risk in any such evaluation that the deficiencies of some projects may obscure the successes of other projects. For this reason, in the Year Two Report as well as the earlier Year One Report, we consider the results of quasi-experimental analyses of differences among local projects to be fully as important as, and for many purposes, more important than, results of the overall program impact analyses.

Third, because of unexpected changes in the sampling plan for the Office of Civil Rights' survey of districts in 1974-75, the OCR data tapes for that year did not contain minority-group isolation (MGI) data for a sufficiently large or diverse sample of districts to permit an evaluation of ESAA's overall impact on MGI; such an evaluation would have required a district-level comparison of MGI in ESAA-funded districts and in comparable but non-ESAA districts. However, MGI data for the ESAA evaluation sample are used in the Year Two Report for quasi-experimental analyses of relationships between certain program variables and reduction in MGI.

Finally, this report does not include analyses of achievement changes over the summer of 1974, i.e., differences in students' achievement scores for spring 1974 and fall 1974. These "summer study" analyses will be described in a separate report to be prepared at a later date. Also not included in the Year Two Report, but currently being documented in a separate report, are results of a special In-Depth Study. In the In-Depth Study, detailed interview and observational data were collected, in addition to the regular ESAA evaluation data, in a subset of 30 schools that would provide good contrast in level of program success; these data were analyzed to determine what program characteristics most clearly differentiated successful from less successful local projects.

Before turning to the substantive findings of the Year Two evaluation, it is important to consider in some detail the sampling procedures and the resulting evaluation samples at the district, school, and student levels. The following chapter reviews the original Year One sampling strategy, and then describes both the Year Two cross-sectional samples and the two-year longitudinal samples. Sample attrition within and across years is discussed, and Year Two sample representativeness is examined to identify possible constraints in generalizability of findings to the award universe. For readers not interested in details of the sampling methodology, results of the sampling procedures are briefly summarized in Sections D.1.d. and D.2.d of Chapter II.

CHAPTER II

EVALUATION SAMPLE SELECTION

In Year Two, emphasis was placed on improving the first year's sample, in part by increasing the number of the Pilot Elementary and Basic Secondary school pairs over that obtainable in Year One. In general, Year Two sampling followed the same ground rules and attempted to satisfy the same evaluation objectives, (listed in Chapter I) as the Year One sample selection process. It was apparent from the start of the evaluation that several of those objectives, dealing with analyses of longitudinal program effects, could best be met in the Year Two sampling by retaining as many as possible of the Year One sample districts, schools, and students that still met the study requirements. At the same time, other objectives required supplementing the Year Two samples by the addition of newly-funded districts and schools, so as to provide sufficiently large cross-sectional samples for descriptive and relational analyses.

Because of the close interrelationships between Year One and Year Two sampling, it seems useful to review the procedures and results of Year One sampling before examining the Year Two activities. Sections A and B, below, discuss the Year One samples, while Sections C and D describe the Year Two sampling activities, the resulting samples, and the representativeness of those samples.

A. GOALS AND PROCEDURES OF YEAR ONE SAMPLING

Implicit in the ESAA evaluation objectives cited in Chapter I were several important requirements for the evaluation sample. The most critical of these requirements were as follows:

- Evaluation data were needed at both the elementary and secondary levels, as there was strong interest in ESAA program operations and impact at both levels.

- The longitudinal nature of the study required data collection at multiple grade levels, so that cohorts of students starting ESAA participation at different times and grades could be followed for more than one year. To meet this requirement, three consecutive grade levels were selected at the elementary level (grades 3 through 5) and three at the secondary level (grades 10 through 12).

- Sufficently large samples of students were needed at each level in each sample school to allow for anticipated attrition over a period of up to three years.

- The evaluation universe was limited where possible to districts having two or more schools designated for ESAA participation. By this means, matched pairs of treatment and control schools could be sought with intra-district equating of district-level variables.

Based on the general sampling requirements listed above, evaluation universes were defined; that is, specifications were prepared that defined the total sets of districts and schools potentially eligible for inclusion in the evaluation samples. An initial step in defining evaluation universes was the listing of all districts receiving Pilot and/or Basic ESAA awards for school year 1973-1974. The resulting universes were then further limited to districts having Basic and/or Pilot programs planned for grades 3, 4, and 5, or for grades 10, 11, and 12.

At this point, a preliminary review of district grant applications was conducted to determine how many districts were likely to meet the evaluation universe requirements as initially defined. Data available in most applications included the names of ESAA-participating* schools, participating grade levels, numbers of participating students, percentages and types of participating minority students, and types of ESAA activities planned.

Based in part on data in the district grant applications, and in part on design requirements discussed above, a preliminary sampling plan was adopted, subject to final revision as further data became available on the ESAA programs. Major features of the plan were as follows:

- Three independent evaluation universes would be defined and sampled: a Pilot Elementary universe, a Basic Elementary universe, and a Basic Secondary universe. No Pilot Secondary schools would be considered, since the number of Pilot awards involving secondary schools was small.

- The Pilot and Basic Elementary samples would include students at grades 3, 4, and 5, while the Basic Secondary sample would include grades 10, 11, and 12.

- For each of the three universes, a sample of at least 25 pairs of participating schools (one pair per district) would be sought. Schools would be paired within districts by similarity in minority-group enrollment, in pre-ESAA achievement level, and in socioeconomic status. Within pairs, treatment and control conditions would be randomly assigned; this would result in ESAA funds being withheld from one school of each selected "participating" pair of schools.

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*For purposes of this sampling discussion, references to schools or students "participating" in ESAA activities simply mean that they were so designated in the districts' grant applications. In reality, none of the schools or students were actively engaged in ESAA activities at the time of the sample selection; furthermore, some of them were ultimately assigned to the control (non-ESAA-funded) conditions, and therefore never participated in ESAA programs.

- Students would be sampled across classes within grade, rather than by intact classes, to increase the number of classes and teachers represented within the sampling constraints and to ensure that the grade sample was representative of the children at grade within the school.

The sampling plan, as described above, still represented a goal rather than an accomplished fact. To determine the feasibility of some specific features of that plan, more detailed information was obtained on each ESAA grant awardee, including data about the participating grade levels within each school, the number of ESAA-participating students in each grade, the type and percentage of each minority group in the school's enrollment, comparative ratings within each district of each school's prior academic achievement, and comparative ratings within the district of each school's socioeconomic status. These data were used to reach a final definition of the three evaluation universes, and to develop sampling procedures within each universe, as described in the following two sections of this chapter.

1. FINAL DEFINITION OF EVALUATION UNIVERSES AND ADJUSTMENT OF PLAN FOR SAMPLING DISTRICTS AND SCHOOLS

a. Year One Pilot Elementary Sample

Because of the relatively small number of funded Pilot programs, it was necessary to select a primary Pilot evaluation universe and a supplemental evaluation universe. The primary evaluation universe consisted of all districts with Pilot programs awarded for school year 1973-74 that had two or more participating schools with Pilot activities in at least two consecutive grade levels of interest. Additional requirements of this universe were (1) that the participating schools should be pairable (i.e., similar in student socioeconomic status, pre-ESAA achievement, and percentage and type of minority enrollment), and (2) that each participating school should have at least 25 participating students in each of grades 3, 4, and 5.

Only 17 Pilot districts could be identified that met the requirements of the primary evaluation universe. All of these districts were included in the final sample, as it was originally desired to have at least 25 districts with pairable schools. Therefore, at the district level, the sample was identical to the primary evaluation universe. Each of these districts became a stratum, with the primary sampling unit being the school.* Within a district, all possible pairs of eligible schools (i.e., schools similar in student SES, pre-ESAA achievement, and percentage and type of minority enrollment) were listed, and one pair was randomly selected. One school within that pair was randomly selected as the treatment school, and the other automatically became the control school for the district.

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*For sampling purposes, a "feeder" school and its corresponding "fed" school (e.g., where one school covers grades K through 3 and provides students to another school covering grades 4 through 6), the two schools were treated as a single school unit. However, data tables presented in later chapters of this report frequently treat the two schools separately in order to describe the variability among distinct physical entities.

Because of the small number of resulting pairs, it was felt necessary to select additional Pilot schools that could not be paired. (These ESAA-participating schools were to be used to round out the sample for descriptive purposes, but could not be used, of course, in the experimental analysis of treatment-control differences in achievement test scores.) Thus a second, or supplemental, sample of single treatment schools was drawn at random from a pool of all Pilot Elementary schools that met criteria and that had not previously been selected.

Thirty-five districts were designated for inclusion in the final Pilot sample. This included 17 districts with matched pairs of treatment and control schools (i.e., districts in the primary evaluation universe), and 28 districts with a single treatment school. (Ten of the districts had both a treatment-control pair and a single treatment school.) Of the total 62 schools, therefore, 45 were in the treatment condition.

b. Year One Basic Elementary Sample

The Basic Elementary evaluation universe consisted of districts receiving Basic Elementary grants for the 1973-74 school year that had two or more pairable schools with Basic program activities designated for grades 3, 4, and 5. An additional requirement was that each participating school should have designated at least 50 participating students in each of those grades.

After an initial screening of Basic awardees, it was evident that there would be more than an adequate number of districts meeting these criteria. Therefore, a further reduction was made in the universe of eligible districts by eliminating a 50% random sample from the set of districts having comparatively small numbers of participating schools or having only one or two of the grade levels of interest. Additional program data were collected by telephone from the remaining districts. Several districts were found not to meet the screening criteria, and were eliminated from the universe. The resulting universe was found to include 47 Basic Elementary districts.

c. Year One Basic Secondary Sample

The Basic Secondary evaluation universe consisted of all districts receiving Basic Secondary grants for school year 1973-74, that had two or more pairable schools with Basic program activities designated for grades 10, 11, and 12. A further design goal was that there should be at least 50 students in each of those grade levels in each of the participating schools. Twenty Basic Secondary districts met these criteria, and all were designated to be included in the evaluation. Thus, as in the Pilot program, the sample was identical to the evaluation universe.

A matched pair of secondary schools was randomly selected for each district, using the same procedure described for the elementary samples. Even though this resulted in fewer than the 25 pairs of schools desired for the Basic Secondary sample, it was decided that sampling more than one pair of schools in a district would be too great a hardship on the district. One school of each pair was randomly assigned to the treatment condition and the other school to the control condition.

2. SAMPLING STUDENTS WITHIN SCHOOLS

Student selection was the second stage of the two-stage probability sampling procedure. Rosters of students participating in ESAA were requested, by grade, from treatment schools. The control schools were asked to provide rosters of students who would have received the same ESAA-funded services as the treatment school, if they had not been designated as control schools. Students with severe mental, physical, or linguistic handicaps were excluded from all rosters.

Students' names were chosen by a random procedure within grade from the rosters. For the third grade of the Pilot sample, 90 students, if available, were selected across all classes within a school at that grade level. The first 60 of the 90 were included in the final sample if they were present and were tested during Fall achievement testing. The remaining students were included in the sample, in the order in which they were drawn, as needed to replace absentees and to reach the desired total of 60.

The same procedures were used for Pilot fourth and fifth grades, except that 45 names were drawn for each grade (the desired final total being 30 per grade). For the Basic samples, 90 names were drawn to obtain 60 students at each grade level.

In small schools or small ESAA programs, it was often difficult to reach the desired total of 60 or 30 students per grade. In these cases, testing personnel asked school authorities, just prior to the test day, whether any new students meeting study criteria had arrived in school since the rosters had been sent to SDC. If so, names of these new students were added to the end of the previously prepared lists, in alphabetical order, and the students were randomly drawn into the samples as needed.

3. SUBSEQUENT REVISIONS IN YEAR ONE SAMPLES

A certain amount of sample shrinkage occurred between the final designation of sample districts and the pretest administration. In many cases, adjustments were made so that districts could remain in the sample, but in some instances, districts were dropped from the study. In addition, some attrition in the study sample occurred between the fall of 1973 and the spring of 1974. All adjustments and changes to the original evaluation sample are discussed below, and the final Year I samples resulting from these adjustments are described.

a. Special Adjustments in Individual Districts

The great majority of selected districts agreed to participate as stipulated in the sampling design. However, some districts stated that their participation would create severe problems at the local level. These problems were handled in a variety of ways, depending upon local conditions. Where hardships were claimed, resolutions were worked out directly between USOE and the districts. In some cases it was necessary to select new pairs of schools; when this occurred, those pairs were randomly drawn and the treatment-control conditions were randomly assigned. In other cases, treatment and control sections were established within schools.* These sections contained students who were randomly assinged to treatment and control classes. Finally, in some control schools, limited ESAA activities were allowed in specified grades outside the grades of interest in the evaluation.

Because of the comparatively small number of secondary schools in most districts, secondary control schools tended to create the greatest burden for districts. Some districts requested that no control schools be employed, and it occasionally appeared that no control-type adjustment was reasonably possible; pairs of treatment schools were selected in these cases, but were not included in any treatment-control comparisons.

In addition to these adjustments, several districts made changes in their programs during the year that caused them to fall outside the boundaries of the evaluation universe. For example, some districts' grants were not renewed or the districts withdrew from ESAA, and some districts reassigned funds to grade levels not in the study or to schools not selected for participation. In these cases, the districts were dropped from the study. Also, two large urban districts in eastern cities did not release spring questionnaire and posttest data until it was too late to include them in the Year I analyses. One district had a large percentage of Black students and the other had the largest Spanish-descent population of the districts originally included in the evaluation sample.

b. Pretest-Posttest Attrition

Exclusive of schools in the two large urban districts where posttest data were not available, the pretest sample consisted of 21,699 students in 180 schools; 19,573 of these students were posttested, for an overall attrition rate the first year of only 9.8%.

As would be expected, the attrition rate for secondary students was much higher than for elementary students (17.7% for secondary students versus 7.4% for elementary students). Within the elementary level, the three grades had almost identical attrition rates. For the secondary students, however, the rate of attrition increased markedly in the twelfth grade. This may be in part explained by students' reaching an age where they were no longer subject to compulsory education requirements. Overall, elementary students in Basic programs had a slightly higher attrition rate than those in Pilot programs (7.9% versus 6.4%).

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*In analysis comparing treatment and control programs and outcomes, these within-school sections are treated as separate schools. For analyses describing characteristics of the school themselves (i.e., where data for the two units would be identical), these cases are treated as a single unit.

Among students whose ethnicity could be established, the highest attrition rate in the Pilot and Basic Elementary samples occurred among White students (approximately 9%). In secondary schools, Blacks and Whites had virtually identical attrition rates (17%). There was no difference in attrition rate between treatment (ESAA-funded) schools and control (non-funded) schools for any of the three evaluation samples.

In both elementary groups, a much higher than average attrition rate occurred in HEW Region VII (Central Midwest); in the Basic Elementary programs only, a similarly high rate occurred in Region IX (Western states). Among Basic Secondary schools, three of the four regions represented had quite similar attrition rates. However, in Region II (New York and New Jersey) the rate was double that in the other regions.

An important question was whether the shrinkage in sample size was selective in terms of achievement level; that is, were the students who dropped out substantially higher or lower in terms of their pretest achievement scores than those students who were still in school at the time of the posttest? On all measures, in all but one instance (Basic Elementary Grade 5--Reading Vocabulary), the pretest means of the students who were not posttested were lower than the means for the students who were posttested. This difference in scores was greater at the secondary level than at the elementary level, presumably because of the greater attrition rate in high schools. For example, in the twelfth grade, where student attrition due to dropouts was particularly heavy, the difference in pretest scores between pretest-only and pretest-posttest students was largest.

The evidence seems quite clear that, overall, it was the poorer-achieving students who left school, either as dropouts or as transfers. To this extent, any findings concerning student gains in achievement test scores may not be entirely generalizable to the original (pretest) sample, which included a larger proportion of the slower students than the final posttest sample. However, since no systematic differences were found between treatment and control schools in attrition rates or in the pretest achievement levels of students not present for posttesting, treatment-control comparisons should be unaffected.

c. Schools in Final (Pretest-Posttest Overlap) Year One Evaluation Sample

The final Year I evaluation sample consists of schools for which complete pretest-posttest achievement data were collected. Table II-1 shows the distribution of treatment and control schools in the three sample groups

TABLE II-1. TREATMENT-CONTROL SCHOOL DISTRIBUTION FOR SAMPLE SCHOOLS IN YEAR ONE (1973-74) BY PROGRAM TYPE

Evaluation Group	Grade Level	Number of Treatment Schools in T-C Pairs*	Number of Control Schools in T-C Pairs*	Number of Unpaired Treatment Schools	Number of Treatment-Control Pairs at All Grade Levels	Number of Unpaired Treatment Schools at All Grade Levels**
Pilot Elementary	3	15	15	21	14	20
	4	18	18	25		
	5	17	17	24		
Basic Elementary	3	36	36	0	35	0
	4	37	37	0		
	5	36	36	0		
Basic Secondary	10	12	12	6	11	6
	11	11	11	6		
	12	12	12	6		

*Counts as separate schools the treatment-control sections within a single school.

**Counts schools that constitute a feeder-fed relationship as a single unit.

on which all Year I analyses were performed.* Overall, the Pilot sample consisted of 18 treatment-control pairs and 25 unpaired treatment schools; the Basic Elementary sample consisted of 37 pairs; and the Basic Secondary sample consisted of 12 pairs and 6 unpaired treatment schools. However, the distribution of paired treatment and control schools and unpaired treatment schools differed at each grade level. As the table indicates, there were some school pairs and unpaired schools where only one or two grade levels were represented. The last two columns of the table specify the number of paired and unpaired schools with student participation at all three grade levels.

B. REPRESENTATIVENESS OF YEAR ONE SAMPLES

Within the total universe of ESAA Pilot and Basic grant awards, constraints were imposed to limit the districts and schools from which the evaluation samples would be drawn. These constraints (selection criteria), which reflected the priority goals of the evaluation, served to define three evaluation universes: Pilot Elementary, Basic Elementary, and Basic Secondary. A particularly important aspect of the evaluation universes was the emphasis on selection of matched pairs of designated ESAA schools within districts, so that schools could be randomly assigned to treatment and control conditions while holding district-level variables constant across each school pair.

Overall, the three evaluation samples can be assumed highly generalizable to their corresponding evaluation universes, by virtue of the procedures applied in selecting those samples. For example, at the district level, the Pilot Elementary sample included all of the award districts meeting the criteria that defined the primary Pilot evaluation universe (i.e., districts with Pilot programs awarded in April or June 1973, having two or more pairable schools designated for Pilot activities in at least two consecutive grade levels of interest, and with at least 25 participating students in each of those grades). To augment this sample, several additional districts were selected that did not fully meet the criteria of the primary Pilot evaluation universe; these districts were used for descriptive purposes, but not for treatment-control comparisons. Similarly, the Basic Secondary sample included all of the districts meeting the criteria of the evaluation universe; i.e., all districts receiving Basic Secondary grants in April or June 1973, having two or more pairable schools with Basic program activities designated for grades 10, 11, and 12, and at least 50 participating students in each grade in each of the schools.

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*The number of schools include in specific analyses described in this report varies according to the needs of those analyses. For example, experimental (impact) analyses and other treatment-control comparisons look only at the paired treatment and control schools, while descriptive analyses also include unpaired treatment schools. Thus, in most cases, the sample bases are designated for each reported analysis or table. In this table, school units involving feeder-fed schools are counted as separate schools, as are treatment-control sections within schools.

Selection of sample Basic Elementary districts was slightly more complex, but presumably still produced a sample that was highly representative of the evaluation universe. The definition of this universe was identical to that for the Basic Secondary universe, but involved Basic programs at grades 3, 4, and 5 rather than at the secondary level. The selected sample included all of the districts from those polled that fully met criteria for the evaluation universe.

At the school level, it can probably be assumed that each sample (Pilot Elementary, Basic Elementary, and Basic Secondary) was essentially representative of schools located in the selected districts and meeting the evaluation universe criteria. These school-level criteria included pairability in terms of student SES, racial/ethnic composition, and prior achievement, and sufficient numbers of students designated for participation at each grade level of interest. Within each sample group, the selected schools were a random sample of school pairs in the corresponding evaluation universe.

Finally, it can be assumed that the student samples for all three sample groups were representative of eligible students in the evaluation universes, since they were randomly drawn from the designated ESAA participants across classes at grade levels of interest in the selected schools.

Although the discussion up to this point has focused on sample representativeness with respect to the evaluation universes, another issue of obvious importance and concern is whether the samples were representative of the total universe of ESAA Basic and Pilot awards. Unfortunately, few systematic analyses could be performed to answer this latter question, because of the lack of data on most characteristics of the award universe. At the time the Year One Report was prepared, in fact, the only data available on the award universe pertained to the funding levels and geographic distributions of ESAA awardees. Although geographic representativeness was not a major design goal of the evaluation, a high correlation was found across the evaluation samples between the number of districts receiving ESAA awards in each HEW region and the number of sample districts in that region.

With respect to other demographic dimensions, inferences concerning similarities and differences between the samples and the award universes could be based only on rational analyses of the sampling strategy itself. For example, it was assumed on a priori grounds that the sample districts would represent an oversample of large and medium-sized districts and an undersample of small districts. Such a trend would be a natural consequence of the intentional emphasis on matched pairs of schools, as such pairs would not be available in many of the small districts. At the same time, the samples were known to include none of the super-large districts, as such districts either did not receive ESAA funds or were not available for pretesting and posttesting in the initial evaluation year. Furthermore, the absence of certain very large districts having large percentages of Spanish-descent students also meant that there were only small numbers of such students in the samples, particularly at the secondary level. Thus, the Year One evaluation was considered primarily a study of ESAA's effectiveness with Black and White students. In summary, the Year One samples were generally representative of the evaluation universe but somewhat less representative of the universe of districts receiving ESAA awards.

C. GOALS AND PROCEDURES OF YEAR TWO SAMPLING

Between Year One and Year Two there were several important changes in the evaluation samples. Some changes were forced by circumstances such as the discontinuation of ESAA funding in certain districts; other changes were designed to improve the samples by including newly funded districts. The major goals in selecting Year Two sample sites were as follows:

- To retain as many as possible of the treatment-control school pairs from the Year One samples, so as to maximize the size of the two-year longitudinal samples.
- To select new treatment-control pairs to replace Year One sample schools dropped because of discontinued ESAA participation.
- To supplement the Year One Pilot Elementary and Basic Secondary samples, thereby increasing the size of each Year Two cross-sectional sample as nearly as possible to 25 treatment-control pairs.
- To eliminate unpaired treatment schools from the Pilot sample, if enough treatment-control pairs could be obtained for the sample, since such unpaired schools could not be used for the experimental treatment-control pairs.

To meet these objectives, sampling procedures were developed for processing the 1974-75 Basic and Pilot awards, which were announced in June 1974. First, awards were analyzed to determine the characteristics of districts, schools, and students remaining from the Year One samples. (It was found that 10 of the Year One districts were not re-funded for Year Two.) Based on this analysis and on the evaluation goals, the following decisions were made:

- No additions would be made to the Basic Elementary sample, since the continuing sample was already more than adequately large.
- New treatment-control pairs of schools would be added to supplement the Basic Secondary and Pilot samples, and unpaired treatment schools would be dropped from the samples if sufficient numbers of pairs could be obtained.
- No new pairs would be added within districts that had been included in the Year One samples, as it seemed important to minimize burden on those districts.
- Student samples would be augmented in continuing schools for purposes of cross-sectional analysis.
- New third-grade or tenth-grade samples would be drawn in continuing schools, so that the same range of grades would be included in each year's cross-sectional samples.

At this point, the applications from all districts (approximately 700) receiving 1974-75 ESAA awards were studied in greater detail to determine which sites not previously used in the study might be eligible for use in augmenting the Year Two Pilot Elementary and Basic Secondary samples. In addition, telephone calls were made to over 300 districts that showed some possibility of meeting the selection criteria. In these calls, information was obtained concerning (a) the names of schools in which ESAA activities were planned for grades 3 through 5 or 10 through 12, (b) the numbers of students at those grades designated to participate in ESAA, (c) the percentages and types of minority students in each school designated to participate, and (d) comparative ratings of the designated schools with respect to students' prior academic achievement and their families' socioeconomic status.

Based on information obtained from the phone calls and grant applications, and on the Year Two sampling objectives, three evaluation samples were defined at the start of the 1974-75 school year. A summary of the composition of those three cross-sectional samples is shown in Table II-2,* along with corresponding data for the Year One samples and for the two-year longitudinal samples. Of most immediate interest for the present discussion are figures in the "Pretest" column under the general columnar heading "Year Two Cross-Sectional Sample." Entries in this column show, for each major sample, the number of districts, the total number of schools, the number of treatment-control school pairs, and the number of students from whom data were available at the Year Two pretest. The following paragraphs briefly summarize the sampling procedure by which those samples were derived.

1. PILOT ELEMENTARY SAMPLE

The continuing (longitudinal) sample as defined at the start of Year Two consisted of 11 Pilot districts, each with the same treatment-control school pair that participated in the first-year evaluation. All fourth- and fifth-grade students still available from the first-year sample were retained in the study and constituted the longitudinal student sample. A new third-grade sample was drawn in each school, using procedures identical to those employed in Year One (i.e., random selection across sections within grade). At grades 4 and 5, new students were sampled to augment the samples of continuing students, in order to offset the effects of sample attrition. All of these newly added students were included in the Year Two cross-sectional sample (but not, of course, in the longitudinal sample).

The Year Two cross-sectional sample of districts and schools consisted of the longitudinal sample plus newly added sites. Specifically, nine new districts, each with a treatment-control school pair, were added to the Pilot sample; these new districts exhausted the pool of Pilot districts meeting the sampling criteria. Procedures identical to those for Year One were used to select each pair of schools, to assign those schools randomly to treatment and control conditions, and to select sample students within the schools.

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*In determining school counts for this table, a feeder-fed school combination was counted as a single school, as was a school having both a treatment and a control section. However, in the figures for T-C (treatment-control) school pairs, a school having a treatment and a control section was counted as if it were an actual pair of schools.

TABLE II-2. SUMMARY OF SAMPLE DISTRICTS, SCHOOLS, TREATMENT-CONTROL PAIRS, AND CONTINUING STUDENTS DURING THE FIRST TWO YEARS OF THE EVALUATION

Sample	Level	Year One Cross-Sectional Sample		Year Two Cross-Sectional Sample		Year Two Longitudinal Sample
		Frequency at		Frequency at		Frequency Continuing Through Posttest
		Pretest	Posttest	Pretest	Posttest	
Pilot Elementary	Districts	32	31	24	24	15
	Schools	56	55	44	44	26
	T-C Pairs	18	18	20	20	13
	Students	5,635	5,276	5,456	4,836	1,224
Basic Elementary	Districts	37	37	35	35	35
	Schools	74	74	70	70	70
	T-C Pairs	37	37	34	34	34
	Students	10,937	10,076	9,107	8,358	4,214
Basic Secondary	Districts	18	14	19	19	11
	Schools	36	28	38	38	22
	T-C Pairs	15	12	20	20	10
	Students	5,127	4,222	5,179	4,103	1,155

can be drawn from the sample about the universe of districts that were newly funded in the second year.

Next, let us consider the question of the representativeness of the Year Two samples with respect to the Year Two award universes. That is, how representative were the samples of the total universes of districts, schools, and students participating in ESAA Basic or Pilot programs?

Unfortunately, there is no simple answer to this question, because of the scarcity of data on those award universes. The major source of district-level universe data was an Office of Civil Rights (OCR) district survey performed in 1972-73. That survey was limited to some fairly gross indicators of socio-demographic characteristics and desegregation indices. Consequently, nothing is known about overall achievement levels of students in either the sample districts or the award universe districts; furthermore, no detailed data are available on individual schools within the surveyed districts.

Despite these constraints, some clues concerning sample representativeness can be gleaned from an examination of OCR data and data collected in the sample schools, and from an analysis of sample attrition. The remainder of this chapter presents data germane to the representativenss of the Year Two cross-sectional and longitudinal samples. In all sample-universe comparisons reported below, the universes referred to are the Year Two award universes.

1. YEAR TWO CROSS-SECTIONAL SAMPLES

Three types of evidence are presented below concerning the representativeness of the Year Two cross-sectional samples. First, the Year Two award universe districts and the cross-sectional sample districts are compared, with respect to students' racial/ethnic composition, size of total enrollment, and desegregation status. Second, comparisons are drawn between the racial/ethnic composition of sample students and that of the total enrollments in the sample districts, to determine the cross-sectional samples' representativeness in that respect. Finally, comparisons are made between the pretest scores and racial/ethnic composition of students lost by sample attrition during Year Two, and of those remaining in the samples at the end of Year Two, so as to assess possible biasing effects of the attrition. These analyses somewhat anticipate and overlap the content of subsequent chapters; they include summary statistics on certain district and student variables covered in those later chapters, and also examine sample changes over the 1974-75 school year. Such minor redundancies seem worthwhile, however, in order to consolidate the primary discussions of sample representativeness in this early chapter.

a. District-Level Comparisons of Year Two Cross-Sectional Samples and Award Universes

Several analyses were performed to determine how representative the Year Two cross-sectional sample districts were of districts in the Year Two ESAA award universes. (Comparable analyses could not be performed at the school level because of lack of data on the universes of ESAA-participating schools.) These district comparisons were based on demographic data collected by the

Office of Civil Rights (OCR) in their 1972-73 district survey. Although the survey did not cover quite all of the relevant sites, it did include over 90% of the Year Two award universe districts and 93% of the sample districts, and was thus considered adequate for overall comparison purposes. It was assumed that the 1972-73 OCR figures were still reasonably valid in 1974-75 (Year Two), as it was known from earlier analyses that most districts had desegregated at least two years earlier, and thus were not in a state of rapid transition with respect to racial/ethnic composition or related attributes. Furthermore, more recent OCR surveys have excluded large percentages of the sample and award universe districts.

Subsequent paragraphs compare the sample and award universe districts with respect to district size (total enrollment); racial/ethnic composition of student enrollment; desegregation status as indicated by the district's Desegregation Index (D.I.); and number of years the districts had been desegregating prior to 1972-73. Other comparisons, based on different data sources and dealing with the districts' geographic distributions, are discussed in Chapter III.

(1) District Percentages of Students of Different Racial/Ethnic Groups

Table II-3 gives a district-level picture of the racial/ethnic composition of students in the samples and in the award universe. Major row headings in this table represent the two samples (Pilot and Basic). The top row within each sample shows for each racial/ethnic group the median value of the distribution of district percentages; the bottom row shows the actual percentage represented by racial/ethnic group within the total pooled enrollment across districts in that sample. These two sets of figures give a better picture than means, as most of the frequency distributions across districts were highly skewed.

It can be seen that the percentage figures for both Basic and Pilot sample districts were quite similar to the corresponding figures for the award universe districts, with the largest discrepancy being only about 3%. Thus, with respect to racial/ethnic composition, the sample districts appear satisfactorily representative of their respective award universes.

(2) District Enrollment Sizes

Figures in the left-hand column of Table II-4 show the median enrollment values of districts in the samples and the corresponding award universes. It is clear from these figures that, for both Pilot and Basic districts, the sample districts had substantially larger enrollments than the award universe districts, by a factor of almost three. This finding was expected, as the sampling strategy placed top priority on finding pairs of similar schools within districts; such pairs were much more commonly available in medium-to-large districts than in small districts. In effect, then, the sample was truncated at the low-enrollment end. Consequently, results of this evaluation may be generalizable to medium- and large-sized districts, but their generalizability to small districts is highly questionable. Additional data on the actual frequency distribution of sample districts' enrollments are presented in Chapter III.

TABLE II-3. COMPARISON OF RACIAL/ETHNIC COMPOSITION IN YEAR TWO CROSS-SECTIONAL SAMPLE DISTRICTS AND AWARD UNIVERSE DISTRICTS

Districts		Percentage Black		Percentage American Indian		Percentage Spanish		Percentage Oriental		Percentage White	
		Sample	Universe	Sample	Universe	Sample	Universe	Sample	Universe	Sample	Universe
PILOT	Median of District Percentages	56.58	57.03	0.30	0.00	0.25	0.04	0.07	0.00	30.34	31.43
	Percentages of Total Pooled Enrollments	39.17	41.01	0.11	0.14	13.57	10.52	0.28	0.25	46.86	48.08
BASIC	Median of District Percentages	28.55	31.69	0.05	0.02	0.29	0.18	0.11	0.05	62.76	61.14
	Percentages of Total Pooled Enrollments	31.86	29.68	0.17	0.34	8.62	7.33	0.28	0.67	59.06	61.97

TABLE II-4. COMPARISON OF ENROLLMENTS AND DESEGREGATION STATUS IN YEAR TWO CROSS-SECTIONAL SAMPLE DISTRICTS AND AWARD UNIVERSE DISTRICTS

Districts	Median District Enrollment		Median 1972 Desegregation Index		Median Years Desegregating to 1972	
	Sample	Universe	Sample	Universe	Sample	Universe
Pilot Districts	9,745	3,604	.91	.97	2.94	3.12
Basic Districts	15,239	5,430	.86	.96	4.39	3.79

(3) Desegregation-Related Variables

The center and right-hand columns of Table II-4 show two values related to district-level segregation. Figures in the middle column represent the median values of the districts' Desegregation Indices (D.I.s); these indices provide overall measures of the degree of correspondence in racial/ethnic composition at the district and school levels. D.I. values could theoretically range from 0 to .99, with the latter figure representing effective desegregation. Entries in the right-hand column show the median number of years that the districts had been desegregating prior to 1972. Both of these sets of figures are based on data collected by the Office of Civil Rights in 1972.

The table entries indicate little overall difference between the sample districts and the award districts as of 1972, with respect to the two desegregation measures, although the universe districts had slightly higher D.I. values. Both of these measures are fairly gross, however, and neither gives an in-depth view of social interactions within the districts.

b. Comparisons of Racial/Ethnic Composition of Sample Students and of Sample Districts

Table II-5 compares the racial/ethnic composition of sample students with that of the total student enrollments in the cross-sectional sample districts. Each table entry represents the percentage of the total students in a given sample or universe falling into a particular racial/ethnic category. Data for the sample students are based on responses to questionnaires administered to students (or to teachers, in the case of elementary students) in the 1974-75 school year. District-level data are based on 1972 OCR figures.

Almost without exception, the data in Table II-5 show a consistent trend: percentages of minority students (particularly Blacks) were higher among the sample students than among the total enrollments in the sample districts. The one exception to this rule is that Spanish students were slightly underrepresented among the sample students.

TABLE II-5. COMPARISON OF RACIAL/ETHNIC COMPOSITION OF SAMPLE STUDENTS AND OF STUDENTS IN CROSS-SECTIONAL SAMPLE DISTRICTS

Sample	Percentage Black		Percentage American Indian		Percentage Spanish		Percentage Oriental		Percentage White	
	Sample Students	Students in Sample Districts	Sample Students	Students in Sample Districts	Sample Students	Students in Sample Districts	Sample Students	Students in Sample Districts	Sample Students	Students in Sample Districts
Pilot Sample	64.78	39.17	2.36	0.11	17.72	13.57	0.49	0.28	14.64	46.86
Basic Sample	40.88	31.86	0.43	0.17	6.80	8.62	1.73	0.28	50.16	59.06

The general trend found here is not surprising, and probably reflects the ESAA resource-allocation process much more than it indicates possible bias in the evaluation sample. Criteria for ESAA awards tended to favor schools with larger percentages of minority students. Furthermore, within ESAA-participating schools, ESAA resources were intentionally focused on low-achieving, low-SES students, and there was a tendency for such students to be minority. In brief, while sample students were not entirely representative of students in their districts (with respect to racial/ethnic composition), there is no evidence that they were non-representative of schools and students participating in ESAA programs.

c. Comparisons of Achievement Pretest Scores and Racial/Ethnic Compositions for Cross-Sectional Sample Students Receiving and Not Receiving the Posttest

The final analysis of cross-sectional sample representativeness attempted to determine whether sample bias was introduced by differential attrition of different sample subgroups. Table II-6 shows, for each sample (Basic and Pilot), the Year Two pretest scores for all students receiving the pretest, and for students completing both the pretest and the posttest. It can be seen that for all three samples there was little or no difference in the pretest scores of the two groups of students, on either the reading or math scale.

Differences in racial/ethnic composition were also small, with the largest deviations occurring in the percentage of Black students. For all three samples, the pretest-posttest groups contained slightly larger percentages of Blacks, suggesting that Black students were slightly less likely to leave the sample during the school year than students of other racial/ethnic groups. This finding should not be given too much weight, however, as it is quite possibly an artifact of differences in the percentages of missing data for the total pretest and the pretest-posttest groups. Data on racial/ethnic identification were collected in the spring, undoubtedly after much of the student attrition had already occurred; this is reflected in the higher missing-data percentages for the total pretest group. It seems altogether possible that the excess missing-data cases for the total pretest group consisted largely of Black students. In any event, there is little overall evidence of any substantial sample bias resulting from pretest-posttest attrition.

d. Summary of Year Two Cross-Sectional Sample Representativeness

As noted in the introduction to this section, it was not possible to obtain unequivocal evidence concerning the extent to which the Year Two cross-sectional samples were representative of their respective award universes. This constraint resulted primarily from lack of detailed data on the award universes. However, based on those relevant analyses that could be performed, as reported in this section, the following conclusions appear reasonable:

- Sample districts were representative of award universe districts (both Basic and Pilot) in all major respects examined except total district enrollments. Medium- and large-sized districts were over-represented in the sample because of the sampling strategy's emphasis on including matched pairs of schools within districts.

TABLE II-6. COMPARISON OF STUDENT CHARACTERISTICS FOR YEAR TWO PRETEST AND POSTTEST SAMPLES

		Students Receiving Pretest	Students Receiving Pretest and Posttest*
PILOT ELEMENTARY	Number of Cases	5,456	4,836
	Pretest Percentile Ranking in Reading	22	22
	Pretest Percentile Ranking in Math	20	20
	Percentage Black	55.41	59.49
	Percentage American Indian	1.96	2.17
	Percentage Spanish	15.25	16.27
	Percentage Oriental	00.46	00.45
	Percentage White	12.48	13.44
	Percentage Missing	14.44	8.17
BASIC ELEMENTARY	Number of Cases	9,107	8,358
	Pretest Percentile Ranking in Reading	37	37
	Pretest Percentile Ranking in Math	30	30
	Percentage Black	37.99	40.32
	Percentage American Indian	00.44	00.45
	Percentage Spanish	8.81	9.07
	Percentage Oriental	2.11	2.26
	Percentage White	43.21	44.97
	Percentage Missing	7.44	2.92

*Percentages for each racial/ethnic group in this column differ from those in Table II-5, as they are based on the total possible numbers of respondents rather than on just those students with racial/ethnic identification data.

TABLE II-6. COMPARISON OF STUDENT CHARACTERISTICS
FOR YEAR TWO PRETEST AND POSTTEST SAMPLES (CONT.)

		Students Receiving Pretest	Students Receiving Pretest and Posttest*
BASIC SECONDARY	Number of Cases	5,179	4,103
	Pretest Percentile Ranking in Reading	30	31
	Pretest Percentile Ranking in Math	23	24
	Percentage Black	33.92	37.61
	Percentage American Indian	00.35	00.34
	Percentage Spanish	1.35	1.44
	Percentage Oriental	00.54	00.46
	Percentage White	52.90	55.30
	Percentage Missing	10.93	4.85

*Percentages for each racial/ethnic group in this column differ from those in Table II-5, as they are based on the total possible numbers of respondents rather than on just those students with racial/ethnic identification data.

- Sample students had larger minority-group percentages than did the districts from which those samples were drawn; however, this appears to be a result of the ESAA resource allocation process itself, and there is no clear evidence that the sample students were non-representative of the universes of ESAA-participating students.

- There is little or no evidence that any sample bias was introduced by student attrition during the school year, at least with respect to the students' achievement pretest performance or their racial/ethnic composition.

2. TWO-YEAR LONGITUDINAL SAMPLES

Two kinds of analyses were performed to examine the representativeness of the two-year longitudinal samples. (For purposes of these analyses, the longitudinal samples consisted of students who were pretested and posttested in 1973-74, and at least posttested in 1974-75, and of the schools and districts in which those students were enrolled.) First, comparisons were made between the racial/ethnic compositions and total enrollments of longitudinal sample districts, and those of the Year Two award universe districts. Second, the longitudinal sample students and the total samples of students who received the Year One pretest were compared, to examine attrition effects over the two years.

a. District-Level Comparisons of Racial/Ethnic Composition in the Longitudinal Samples and Year Two Award Universes

Major column headings in Table II-7 represent different racial/ethnic groups, and sub-columns show racial/ethnic percentages for the longitudinal sample districts and the Year Two award universe districts. Each cell entry is the median-value of the distribution of district percentages for that racial/ethnic group. It is evident that, for Pilot districts, there were some fairly substantial differences in composition of the samples and the universes. The percentages for sample districts showed about 9% fewer Whites than the corresponding figures for the award universe districts. Thus, results of analyses of achievement levels and other traits of the Pilot longitudinal sample districts may be more generalizable to districts with relatively high percentages of Black students than to those with lower percentages.

By contrast with the Pilot districts, there were no large differences between the racial/ethnic compositions of Basic longitudinal sample districts and those of the corresponding award universe districts. The largest discrepancies were only about 3%; these were in the direction of larger percentages of White students and smaller percentages of Black students in longitudinal sample districts than in award universe districts.

TABLE II-7. COMPARISON OF RACIAL/ETHNIC COMPOSITION IN LONGITUDINAL SAMPLE DISTRICTS AND YEAR TWO AWARD UNIVERSE DISTRICTS*

Districts	Percentage Black		Percentage American Indian	
	Longitudinal Sample	Universe	Longitudinal Sample	Universe
Pilot Districts (Sample N=15)	68.40	57.03	0.08	0.00
Basic Districts (Sample N=42)	28.98	31.69	0.03	0.02

*Each cell entry is the median value of the distribution of district percentages.

TABLE II-7. COMPARISON OF RACIAL/ETHNIC COMPOSITION IN LONGITUDINAL SAMPLE DISTRICTS AND YEAR TWO AWARD UNIVERSE DISTRICTS* (CONT.)

Sample Districts	Percentage Spanish		Percentage Oriental		Percentage White	
	Longitudinal Sample	Universe	Longitudinal Sample	Universe	Longitudinal Sample	Universe
Pilot Districts (Sample N=15)	0.13	0.04	0.07	0.00	21.95	31.43
Basic Districts (Sample N=42)	0.29	0.18	0.11	0.05	64.88	61.14

*Each cell entry is the median value of the distribution of district percentages.

b. District-Level Comparisons of Total District Enrollments in the Longitudinal Samples and Year Two Award Universes

As seen in Table II-8, longitudinal sample districts, both Basic and Pilot, had much larger median enrollments than the corresponding award universe districts. These figures closely parallel those reported earlier for the cross-sectional samples, and again indicate the greater generalizability of this report's analtyic findings to medium- and large-sized districts than to small districts.

TABLE II-8. COMPARISON OF ENROLLMENTS IN LONGITUDINAL SAMPLE DISTRICTS AND YEAR TWO AWARD UNIVERSE DISTRICTS

Sample Districts	Median Total Enrollment	
	Longitudinal Sample	Universe
Pilot Districts (Sample N=15)	8,842	3,604
Basic Districts (Sample N=42)	12,277	5,430

c. Student-Level Comparisons of Year One Pretest Scores and Racial/Ethnic Composition in Longitudinal Samples and Year One Pretest Samples

Table II-9 shows results of analyses performed to determine similarities and differences between the sample students who received pretests in Year One and the subsets of those students still remaining in the samples for the Year Two posttest. Specifically, the two groups of sample students were compared with respect to racial/ethnic composition (Part A of the table) and Year One pretest scores (Part B).

Entries in Part A represent the percentages of sample students falling into each racial/ethnic category. It can be seen that there were only three percentage shifts of substantial size (i.e., greater than about 3%). In the Pilot Elementary samples, the percentage of Spanish students dropped from almost 16% to under 10%, indicating disproportionately high attrition of those students. There were corresponding, but small, increases in percentages of Black, American Indian, and White students.

The other fairly large shifts in composition were in the Basic Secondary sample, where the percentage of White students decreased by about 8% because of differential attrition. (Such attrition, it should be kept in mind, represents a composite of sample losses at the district, school, and student levels.) This relative loss of White students was complemented by an almost equal gain in percentage of Black students.

Overall, the data in Part A of Table II-9 do not suggest that there were striking changes in racial/ethnic composition of the longitudinal sample over the first two years of the study, although the relative representation of Spanish students in the Pilot Elementary sample decreased somewhat, and that of Black students in the Basic Secondary sample increased. Only minor composition changes occurred in the Basic Elementary sample.

Part B of the table shows sample changes with respect to initial achievement levels of the students, as indicated by their median percentile ranks (based on the publishers' norms) on the pretest administration of standardized reading and math tests. Correspondence between the pretest percentile ranks of the Year One pretest samples and those of the two-year longitudinal samples was, in general, quite high. The largest shift for any of the three evaluation groups was on the reading pretest for the Basic Elementary samples. There the continuing (longitudinal) sample students had a median percentile value of three points higher than the corresponding value for the total pretest sample.

Overall, the comparison of pretest scores indicates a slight differential retention in the Basic Elementary sample of students with higher entry scores; a slight differential retention in the Basic Secondary sample of students with lower entry scores; and no appreciable differential retention in the Pilot Elementary sample.

d. Summary of Representativeness of the Longitudinal Samples

While it was not possible to perform definitive analyses of longitudinal sample representativeness, the results summarized below give some insights in this matter:

- Percentages of Black students were about 9% higher overall in Pilot longitudinal sample districts than in the Pilot award universe, while percentages of Whites were lower by approximately the same amount.

TABLE II-9. COMPARISON OF STUDENT CHARACTERISTICS FOR LONGITUDINAL SAMPLES AND YEAR ONE PRETEST SAMPLES

A. Racial/Ethnic Composition

Sample	Percentage Black		Percentage American Indian		Percentage Spanish		Percentage Oriental		Percentage White	
	Year One Pretest	Year Two Longitudinal	Year One Pretest	Year Two Longitudinal	Year One Pretest	Year Two Longitudinal	Year One Pretest	Year Two Longitudinal	Year One Pretest	Year Two Longitudinal
Pilot Elementary	69.2	72.2	2.0	4.6	15.9	9.5	0.1	0.2	12.8	13.5
Basic Elementary	45.2	44.9	0.5	0.4	7.9	9.1	1.6	2.4	44.8	43.2
Basic Secondary	44.8	51.3	0.0	0.0	0.6	1.2	0.1	0.0	54.5	47.0

B. Year One Pretest Scores (Percentiles)

Sample	Year One Reading Pretest		Year One Math Pretest	
	Year One Pretest Sample	Longitudinal Sample	Year One Pretest Sample	Longitudinal Sample
Pilot Elementary	18	19	15	15
Basic Elementary	31	34	23	24
Basic Secondary	32	30	22	22

By contrast, there were no substantial sample-universe differences in racial/ethnic composition for the Basic longitudinal sample.

- As with the cross-sectional samples, both Pilot and Basic longitudinal sample districts typically had much larger enrollments (by a factor of almost three) than districts in the total award universes.

- Racial/ethnic composition of the longitudinal sample students showed only moderate changes from that of students pretested in Year One. There was a tendency for Spanish students in the Pilot Elementary sample to have decreased percentage representation at the end of Year Two, and for Black students in the Basic Secondary to have increased percentage representation.

- There were no large differences between the first-year achievement pretest scores (percentiles) of the longitudinal sample, and those for the total sample of students at the start of Year One.

CHAPTER III

DISTRICT AND SCHOOL CHARACTERISTICS

This chapter describes certain demographic characteristics of the Year Two sample districts and schools, including their geographic location, racial/ethnic composition, community type, enrollment size, and degree of disadvantagement. These attributes were important aspects of the context in which the evaluation operated during the 1974-75 school year. In addition, analyses were conducted on the relationships of these demographic characteristics to initial achievement on a standardized test and initial level on the School Climate Questionnaire to determine whether certain characteristics were associated with higher or lower entry levels of basic skills or school climate.

A. GEOGRAPHIC LOCATION OF SAMPLE DISTRICTS

This section presents descriptive information on the geographic distribution of districts in the Year One and Year Two cross-sectional samples and the Year Two longitudinal sample across the 10 HEW regions. (A list of the states contained in each of the HEW regions can be found in Appendix A.) Also, the regional distribution for the Year Two cross-sectional sample is compared with that for the Year Two ESAA award universe, to ascertain the extent to which the Year Two sample was geographically representative of the award universe.

The geographic distribution of the sample districts across states is presented in Appendix B, but is not discussed here because of the redundancy of information with the reported regional distribution. Similarly, the distribution of sample schools is not reported, since in almost all cases there were two schools per district in the evaluation samples.

1. BASIC ELEMENTARY SAMPLE

Table III-1 shows the frequency and percentage of Year One and Year Two cross-sectional, and Year Two longitudinal, sample districts in each of the 10 HEW geographic regions. The figures show clearly that the Basic Elementary sample in Year Two drew heavily from Regions IV (Southeast) and VI (South Central), and not at all from Regions I (New England) and VIII (Western Mountain). Comparison of the regional distributions for the Year Two and Year One samples indicates a strong similarity. While there were changes in actual frequencies, the regional percentages showed excellent correspondence, with the largest discrepancy being less than 2%.

TABLE III-1. REGIONAL DISTRIBUTION OF SAMPLE DISTRICTS AND YEAR TWO AWARD UNIVERSE DISTRICTS*

A. Basic Elementary Districts

HEW Region	Year Two Basic Award Universe	Year Two Cross-Sectional and Longitudinal Sample**	Year One Sample
I New England	12(3.1)	0(0.0)	0(0.0)
II Metropolitan Northeast	20(5.2)	3(8.6)	4(10.0)
III Mid-Atlantic	37(9.7)	2(5.7)	4(10.0)
IV Southeast	86(22.6)	11(31.4)	12(30.0)
V North Midwest	26(6.8)	3(8.6)	3(7.5)
VI South Central	129(33.9)	10(28.6)	10(25.0)
VII Central Midwest	14(3.7)	2(5.7)	2(5.0)
VIII Western Mountain	20(5.2)	0(0.0)	1(5.3)
IX Pacific Southwest	31(8.1)	1(2.9)	2(5.0)
X Pacific Northwest	6(1.6)	3(8.6)	3(7.5)

*Cell entries show numbers of districts, with percentages in parentheses.

**All Basic Elementary districts in the Year Two cross-sectional sample were also in the longitudinal sample.

TABLE III-1. REGIONAL DISTRIBUTION OF SAMPLE DISTRICTS AND YEAR TWO AWARD UNIVERSE DISTRICTS* (CONT.)

B. Basic Secondary Districts

HEW Region	Year Two Basic Award Universe	Year Two Cross-Sectional Sample	Year Two Longitudinal Sample	Year One Sample
I New England	12(3.1)	0(0.0)	0(0.0)	0(0.0)
II Metropolitan Northeast	20(5.2)	0(0.0)	0(0.0)	0(0.0)
III Mid-Atlantic	37(9.7)	1(5.3)	0(0.0)	0(0.0)
IV Southeast	86(22.6)	9(47.4)	6(54.5)	8(47.0)
V North Midwest	26(6.8)	3(15.8)	1(9.1)	2(11.8)
VI South Central	129(33.9)	4(21.1)	4(36.4)	6(35.3)
VII Central Midwest	14(3.7)	0(0.0)	0(0.0)	0(0.0)
VIII Western Mountain	20(5.2)	1(5.3)	0(0.0)	0(0.0)
IX Pacific Southwest	31(8.1)	1(5.3)	0(0.0)	0(0.0)
X Pacific Northwest	6(1.6)	0(0.0)	0(0.0)	0(0.0)

*Cell entries show numbers of districts, with percentages in parentheses.

TABLE III-1. REGIONAL DISTRIBUTION OF SAMPLE DISTRICTS AND YEAR TWO AWARD UNIVERSE DISTRICTS* (CONT.)

C. Pilot Elementary Districts

HEW Region	Year Two Pilot Award Universe	Year Two Cross-Sectional Sample	Year Two Longitudinal Sample	Year One Sample
I New England	1(4.2)	0(0.0)	0(0.0)	0(0.0)
II Metropolitan Northeast	10(6.1)	3(12.5)	1(6.7)	4(12.9)
III Mid-Atlantic	14(8.5)	4(16.7)	4(26.7)	5(16.1)
IV Southeast	54(32.7)	7(29.2)	5(33.3)	8(25.8)
V North Midwest	8(4.8)	1(4.2)	1(6.7)	2(6.5)
VI South Central	58(35.1)	4(16.7)	2(13.3)	9(29.0)
VII Central Midwest	2(1.2)	0(0.0)	0(0.0)	0(0.0)
VIII Western Mountain	7(4.2)	1(4.2)	0(0.0)	0(0.0)
IX Pacific	11(6.6)	4(16.7)	2(13.3)	2(6.5)
X Pacific Northwest	0(0.0)	0(0.0)	0(0.0)	0(0.0)

*Cell entries are number of districts, with percentages in parentheses.

2. BASIC SECONDARY SAMPLE

It is apparent from the results presented in Table III-1 that the Year Two Basic Secondary sample districts were even more heavily concentrated in Regions IV (Southeast) and VI (South Central) than the Basic Elementary sample. Almost 70% of the sample districts were located in these two areas. Relative to the distribution of Year One districts, there was substantial regional change in the Year Two cross-sectional sample. Regions III (Mid-Atlantic), VIII (Western Mountain), and IX (Pacific Southwest) appeared for the first time in the Year Two sample, while the sole Year One participant from Region II (Metropolitan Northeast) did not appear in Year Two. In terms of percentage representation, there was a considerable difference between the two years of Region VI (South Central).

3. PILOT ELEMENTARY SAMPLE

As in the Basic samples, the heaviest concentration of the Year Two Pilot sample districts was in Region IV (Southeast). Three regions, II (Metropolitan Northeast), III (Mid-Atlantic), and IX (Pacific Southwest), had roughly equal numbers of sample districts, with between 13% and 17% of the districts located in each. Region VI (South Central), which had one of the largest concentrations of Basic districts, had less than 10% of the Pilot sample districts. The Year One Pilot geographic distribution differed substantially from that of the Year Two sample. In particular, percentage representation decreased for Region VI, while Region VIII was newly represented in the Year Two sample. The geographic distribution shifts in the Pilot Elementary and Basic Secondary samples resulted largely from the addition of new districts in those samples for Year Two.

4. GEOGRAPHIC REPRESENTATIVENSS

The geographic representativeness of the Year Two sample was investigated by comparing the percentage distribution of sample districts across HEW regions with the corresponding distribution for the Year Two award universe, consisting of all school districts that received ESAA awards for the 1974-75 school year. It should be noted that the award universe is divisible only into Pilot and Basic districts, as no distinction is made between elementary and secondary awards. Therefore, the Basic Secondary and Basic Elementary sample districts are considered together in making the comparison with the award universe.

As shown in Table III-1, there was generally fair-to-good correspondence between the regional percentage distribution of Basic award districts and Year Two sample districts. However, Region IV (Southeast) was overrepresented in the sample (i.e., the percentage of sample districts in this region was almost 15% larger than the corresponding figure for the award universe), while Region VI (South Central) was underrepresented by almost 8% in the sample. The remaining regional percentages differed by less than 5%.

For the Pilot sample, the correspondence was moderately strong. The sample regional distribution showed underrepresentation in Region VI (South Central) and overrepresentation in Regions II (Metropolitan Northeast), III (Mid-Atlantic), and IX (Pacific Southwest). In the remaining regions, the discrepancies were less than 3%.

5. SUMMARY OF SAMPLE'S GEOGRAPHIC CHARACTERISTICS

Approximately 50% of all Basic Elementary and Pilot Elementary districts were located in HEW Regions IV (Southeast) and VI (South Central). The Basic Secondary sample was even more heavily concentrated (70%) in these two areas. Comparison of the Year Two geographic distribution with the Year One distribution showed substantial changes for the Pilot Elementary and Basic Secondary samples. In the Pilot sample, Region VIII (Western Mountain) was newly represented in Year Two, while Region VI (South Central) showed a large decline in participation. Regions III (Mid-Atlantic), VIII (Western Mountain), and IX (Pacific Southwest) appeared in the Basic Secondary Year Two sample for the first time.

The Year Two sample districts were moderately representative of the Year Two award universe in terms of geographic distribution. In the Basic samples, Region IV (Southeast) was overrepresented; in the Pilot sample, Region VI (South Central) was underrepresented. The percentage correspondence in the remaining HEW regions was fairly good in both samples.

B. RACIAL/ETHNIC COMPOSITION OF SAMPLE DISTRICTS AND SCHOOLS

1. SAMPLE DISTRICTS

District student body racial/ethnic composition, which was an important factor in determining the district's ESAA award eligibility, is summarized below by HEW region for each evaluation sample. In addition, the racial/ethnic composition of the district staffs is described and contrasted with that of the students. Two points need to be made about the results reported in this section. First, the reported statistics are based upon the distribution of district percentage racial/ethnic composition, i.e., they were computed from the array of district percentages derived from all sample districts and were not weighted for district enrollment. Second, the statistics should be interpreted with caution because the distributions are often not normal. The data for the district student racial/ethnic composition were derived from information gathered by the U.S. Office of Civil Rights for 1974. The staff racial/ethnic composition was based on data obtained from a questionnaire completed by the superintendent in each sample district.

a. Basic Elementary Sample

Table III-2 presents the racial/ethnic composition of the Basic Elementary districts across the 10 HEW regions. The results indicate that the largest single racial/ethnic group in the sample districts was White. The regional mean percentages of White ranged from 45% of the district enrollment in Region IX (Pacific Southwest) to over 81% in Region X (Pacific Northwest). The second largest group, for all regions except IX, was Black.

TABLE III-2. BASIC ELEMENTARY SAMPLE: DISTRICT PERCENTAGES OF STUDENTS OF DIFFERENT RACIAL/ETHNIC GROUPS, BY HEW REGION*

HEW Region		Cross-Sectional and Longitudinal Sample**			
		White	Black	Spanish	Other
II Northeast	$\overline{\%}$	78.28	19.00	1.80	0.93
	S.D.	12.25	9.40	1.87	0.99
	N	2	2	2	2
III Mid-Atlantic	$\overline{\%}$	66.39	33.09	0.17	0.36
	S.D.	4.66	5.11	0.14	0.31
	N	2	2	2	2
IV Southeast	$\overline{\%}$	47.80	51.82	0.13	0.26
	S.D.	25.43	25.69	0.12	0.27
	N	11	11	11	11
V North Midwest	$\overline{\%}$	73.72	25.79	0.18	0.31
	S.D.	0.0	0.0	0.0	0.0
	N	1	1	1	1
VI South Central	$\overline{\%}$	49.75	36.50	13.57	0.18
	S.D.	24.68	27.08	27.69	0.14
	N	9	9	9	9
VII Central Midwest	$\overline{\%}$	57.98	37.96	3.08	0.98
	S.D.	28.59	28.69	0.54	0.64
	N	2	2	2	2
IX Pacific Southwest	$\overline{\%}$	45.08	9.49	43.97	1.46
	S.D.	0.0	0.0	0.0	0.0
	N	1	1	1	1
X Pacific Northwest	$\overline{\%}$	81.26	10.50	5.81	2.44
	S.D.	2.48	1.77	6.10	1.85
	N	2	2	2	2

*Entries represent the mean values of the distribution of district percentages, the standard deviation of those percentages, and the number of districts.

**All Basic Elementary districts in the Year Two cross-sectional sample were also in the longitudinal sample.

The percentage of Spanish students in the districts was consistently low, except in Region IX. There the mean of the districts was over 40% Spanish. The results further indicate that districts in all regions had low percentages of students from racial/ethnic groups other than Black, White, or Spanish.

The racial/ethnic composition of staff members was analyzed to determine how closely the staff racial/ethnic composition in each district paralleled that of the students. As Table III-3 shows, White teachers constituted the largest single racial/ethnic group over all regions, with Blacks second in relative frequency. There was a somewhat lower average percentage of minority teachers than of minority students in each region. The largest discrepancy occurred in Region IX, where 45% of the students and 85% of the teachers were White. The same region contained the largest representation of Spanish students, but the percentage representation of Spanish teachers was only one-fifth as high. The results for the district administrators and clerical staff followed the same pattern as those for the teachers, i.e., lower average percentages of minority administrators and clerks than of minority students.

b. Basic Secondary Sample

The racial/ethnic composition of students in districts in the Basic Secondary sample is shown in Table III-4. Compared with the Basic Elementary districts, a much larger percentage of this sample was White, with four of the six regions having mean district percentages of over 80% White. Again, the second largest group of students was Black. The mean district percentage of Spanish students was fairly low, although it reached almost 10% in three of the six regions represented.

The racial/ethnic composition of staffs for districts in the Basic Secondary sample, as shown in Table III-5, included a heavy concentration of White teachers, administrators, and clerical staff in all HEW regions represented. These percentages were in fairly close agreement with the percentages for students.

c. Pilot Elementary Sample

Results for districts in the Pilot sample show wide regional variations in the average percentages of minority and non-minority students (Table III-6). For example, districts in Region VIII (Western Mountain) averaged over 54% White, while districts in all other regions averaged less than 35% White students. Districts in Regions II (Northeast), III (Mid-Atlantic), and IV (Southeast) averaged at least 68% Black. One Pilot district in Region VI (South Central) had a high percentage of "Other" minority students. This district was located in New Mexico, and a large percentage of its students were American Indians.

TABLE III-3. BASIC ELEMENTARY CROSS-SECTIONAL AND LONGITUDINAL SAMPLE:* DISTRICT PERCENTAGES OF STAFF MEMBERS OF DIFFERENT RACIAL/ETHNIC GROUPS, BY HEW REGION**

HEW Region		Teachers				Administrators				Clerical			
		Black (N=34)	White (N=34)	Spanish (N=34)	Other (N=34)	Black (N=34)	White (N=34)	Spanish (N=34)	Other (N=34)	Black (N=34)	White (N=34)	Spanish (N=34)	Other (N=34)
II Metropolitan Northeast	$\overline{\%}$	10.00	89.33	0.67	0.0	17.00	80.67	1.67	0.0	9.33	90.67	0.0	0.0
	S.D.	5.57	4.51	1.16	0.0	17.52	16.56	2.89	0.0	9.45	9.45	0.0	0.0
	N	3	3	3	3	3	3	3	3	3	3	3	3
III Mid-Atlantic	$\overline{\%}$	26.00	74.00	0.0	0.0	22.00	78.00	0.0	0.0	16.50	83.50	0.0	0.0
	S.D.	2.83	2.83	0.0	0.0	2.83	2.83	0.0	0.0	0.71	0.71	0.0	0.0
	N	2	2	2	2	2	2	2	2	2	2	2	2
IV Southeast	$\overline{\%}$	40.46	59.55	0.0	0.0	30.36	69.27	0.0	0.0	29.00	70.46	0.0	0.0
	S.D.	21.63	21.63	0.0	0.0	26.75	27.04	0.0	0.0	27.17	27.26	0.0	0.0
	N	11	11	11	11	11	11	11	11	11	11	11	11
V North Midwest	$\overline{\%}$	12.00	86.67	0.33	1.00	20.33	79.67	0.0	0.0	16.67	83.33	0.0	0.0
	S.D.	5.57	7.77	0.58	1.73	11.93	11.93	0.0	0.0	16.07	16.07	0.0	0.0
	N	3	3	3	3	3	3	3	3	3	3	3	3
VI South Central	$\overline{\%}$	28.11	65.78	6.00	[illegible]	16.56	69.97	3.11	0.0	14.78	73.11	11.89	0.0
	S.D.	19.87	17.21	16.52	[illegible]	20.54	19.09	9.33	0.0	17.95	25.23	26.83	0.0
	N	9	9	9	9	9	9	9	9	9	9	9	9
VII Central Midwest	$\overline{\%}$	25.50	73.00	1.00	0.50	24.00	74.50	1.00	0.50	23.00	76.00	1.00	0.0
	S.D.	23.34	22.63	0.0	0.71	21.21	20.51	20.51	0.0	0.71	19.80	0.0	0.0
	N	2	2	2	2	2	2	2	2	2	2	2	2
IX Pacific Southwest	$\overline{\%}$	5.00	85.00	9.00	1.00	8.00	74.00	16.00	2.00	6.00	73.00	21.00	0.0
	S.D.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	N	1	1	1	1	1	1	1	1	1	1	1	1
X Pacific Northwest	$\overline{\%}$	5.33	89.67	1.33	3.00	11.00	85.00	1.67	1.67	7.67	84.00	3.67	3.67
	S.D.	3.06	4.04	1.53	3.00	6.56	8.00	2.89	2.89	2.52	7.00	6.35	6.35
	N	3	3	3	3	3	3	3	3	3	3	3	3

*All Basic Elementary districts in the Year Two cross-sectional sample were also in the longitudinal sample.

**Entries represent the mean values of the distribution of district percentages, the standard deviation of these percentages, and the number of districts.

TABLE III-4. BASIC SECONDARY SAMPLE: DISTRICT PERCENTAGES OF STUDENTS OF DIFFERENT RACIAL/ETHNIC GROUPS, BY HEW REGION*

HEW Region		Cross-Sectional Sample (N=19)				Longitudinal Sample (N=11)			
		White	Black	Spanish	Other	White	Black	Spanish	Other
III Mid-Atlantic	$\overline{\%}$	92.95	6.93	0.11	0.31	-	-	-	-
	S.D.	0.0	0.0	0.0	0.0				
	N	1	1	1	1				
IV Southeast	$\overline{\%}$	59.51	40.00	0.23	0.25	54.35	45.08	0.27	0.30
	S.D.	24.35	24.56	0.27	0.21	25.83	26.15	0.31	0.25
	N	9	9	9	9	6	6	6	6
V North Midwest	$\overline{\%}$	81.50	13.39	4.54	0.57	89.50	10.19	0.10	0.22
	S.D.	7.57	3.06	4.12	0.43	0.0	0.0	0.0	0.0
	N	3	3	3	3	1	1	1	1
VI South Central	$\overline{\%}$	57.91	31.74	10.18	0.17	57.91	31.74	10.18	0.17
	S.D.	18.42	16.73	7.90	0.22	18.42	16.73	7.90	0.22
	N	4	4	4	4	4	4	4	4
VIII Western Mountain	$\overline{\%}$	83.74	5.89	9.23	1.14	-	-	-	-
	S.D.	0.0	0.0	0.0	0.0				
	N	1	1	1	1				
IX Pacific Southwest	$\overline{\%}$	88.42	0.39	9.43	1.76	-	-	-	-
	S.D.	0.0	0.0	0.0	0.0				
	N	1	1	1	1				

*Entries represent the mean values of the distribution of district percentages, the standard deviation of those percentages, and the number of districts.

TABLE III-5. BASIC SECONDARY SAMPLE: DISTRICT PERCENTAGES OF STAFF MEMBERS OF DIFFERENT RACIAL/ETHNIC GROUPS, BY HEW REGION*

HEW Region		Teachers				Administrators				Clerical			
		Black (N=17)	White (N=17)	Spanish (N=17)	Other (N=17)	Black (N=19)	White (N=19)	Spanish (N=19)	Other (N=19)	Black (N=19)	White (N=19)	Spanish (N=19)	Other (N=19)
III Mid-Atlantic	$\overline{\%}$	5.00	95.00	0.0	0.0	4.00	96.00	0.0	0.0	2.00	98.00	0.0	0.0
	S.D.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	N	1	1	1	1	1	1	1	1	1	1	1	1
IV Southeast	$\overline{\%}$	27.88	71.75	0.38	0.0	28.89	71.00	0.11	0.0	23.22	76.33	0.11	0.0
	S.D.	20.31	19.93	0.74	0.0	15.64	15.47	0.33	0.0	17.96	17.43	0.33	0.0
	N	8	8	8	6	9	9	9	9	9	9	9	9
V North Midwest	$\overline{\%}$	8.33	90.33	1.33	0.0	11.97	86.67	1.67	0.0	3.00	95.67	1.33	0.0
	S.D.	3.22	4.73	1.53	0.0	2.89	3.51	1.53	0.0	1.73	3.22	1.53	0.0
	N	3	3	3	3	3	3	3	3	3	3	3	3
VI South Central	$\overline{\%}$	21.33	75.67	2.67	0.33	21.75	75.25	3.00	0.0	17.50	80.00	2.00	0.0
	S.D.	16.01	17.50	1.56	0.58	15.13	16.22	2.94	0.0	13.63	14.31	2.45	0.0
	N	3	3	3	3	4	4	4	4	4	4	4	4
VIII Western Mountain	$\overline{\%}$	3.00	94.00	3.00	0.0	2.00	96.00	2.00	0.0	1.00	98.00	1.00	0.0
	S.D.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	N	1	1	1	1	1	1	1	1	1	1	1	1
IX Pacific Southwest	$\overline{\%}$	1.00	92.00	5.00	2.00	0.0	93.00	6.00	1.00	0.0	89.00	10.00	1.00
	S.D.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	N	1	1	1	1	1	1	1	1	1	1	1	1

*Entries represent the mean values of the district distribution of district percentages, the standard deviation of those percentages, and the number of districts.

TABLE III-6. PILOT ELEMENTARY SAMPLE: DISTRICT PERCENTAGES OF STUDENTS OF DIFFERENT RACIAL/ETHNIC GROUPS, BY HEW REGION*

HEW Region		Cross-Sectional Sample (N=17)				Longitudinal Sample (N=12)			
		White	Black	Spanish	Other	White	Black	Spanish	Other
II	$\overline{\%}$	15.61	79.44	4.11	0.84	15.66	78.79	4.98	0.58
Metropolitan	S.D.	0.07	0.92	1.23	0.37	0.0	0.0	0.0	0.0
Northeast	N	2	2	2	2	1	1	1	1
III	$\overline{\%}$	27.57	68.87	0.92	2.65	27.57	68.87	0.92	2.65
Mid-	S.D.	15.87	13.68	1.43	3.84	15.87	13.68	1.43	3.84
Atlantic	N	4	4	4	4	4	4	4	4
IV	$\overline{\%}$	26.42	68.55	4.94	0.09	35.29	57.16	7.41	0.13
Southeast	S.D.	18.75	26.63	12.07	0.16	16.34	25.67	14.78	0.19
	N	6	6	6	6	4	4	4	4
VI	$\overline{\%}$	6.83	0.0	8.58	84.59	6.83	0.0	8.58	84.59
South	S.D.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	N	1	1	1	1	1	1	1	1
VIII	$\overline{\%}$	54.36	18.34	25.78	1.52				
Western	S.D.	0.0	0.0	0.0	0.0	-	-	-	-
Mountain	N	1	1	1	1				
IX	$\overline{\%}$	35.77	13.33	48.82	2.08	19.15	18.44	61.94	0.48
Pacific	S.D.	29.33	20.05	33.07	2.82	7.86	25.44	33.98	0.67
Southwest	N	3	3	3	3	2	2	2	2

*Entries represent the mean values of the distribution of district percentages, the standard deviation of those percentages, and the number of districts.

Racial/ethnic composition for staff members in the Pilot districts is shown in Table III-7. The disparity between the racial/ethnic composition of students and that of staffs across HEW regions was larger here than in the Basic sample. In Region II, for example, the districts averaged seven White teachers out of 10, while only two out of every 10 students were White.

2. SAMPLE SCHOOLS

Since eligibility for receipt of ESAA funds is based upon need and racial composition, it is reasonable to assume that schools receiving ESAA funds may not be representative of their districts with respect to these two attributes. This section presents the data on racial/ethnic composition of the sample schools, as reported by school principals. Again, the descriptive statistics are based on the array of school percentage compositions, and thus are subject to the same interpretive cautions noted for the district figures. The racial/ethnic compositions of students and staff at the school level are compared and contrasted in this section.

a. Basic Elementary Sample

The racial/ethnic composition of students in the sample Basic Elementary schools is described in Table III-8. Sample schools averaged almost 55% White students, with Blacks accounting for another 35%. The remaining 10% were almost entirely Spanish. It should be noted that there was a fair degree of variability around the average percentages, indicating that some of the Basic schools undoubtedly drew over half of their students from the minority racial/ethnic groups.

Table III-9 shows the student racial/ethnic composition in a somewhat different form. For this table, Black, Spanish, Oriental, and American Indian students were counted as minority students, and the percentages of these students were computed for each school. Averaged across all schools in the Basic Elementary sample, students were 45% minority and 55% White. The percentages ranged from less than 10% minority to over 81% minority, with almost half the schools having between 30% and 50% minority students.

As at the district level, it was of interest to compare the racial/ethnic composition of students and staffs at the school level (see Table III-10 for staff data). In the Basic Elementary sample schools, over 66% of the teachers were White, while the comparable student figure was 55%. The disparity in percentages was slightly smaller for the clerical staff, but in each case there tended to be smaller percentages of minority staff than of minority students.

For a somewhat different perspective on the correspondence between student and staff racial/ethnic composition, Pearson product-moment correlations were computed between the percentages of minority teachers, administrators, clerical staff, and students. As shown in Table III-11, the correlation coefficients ranged from .58 to .68. Each of the coefficients was statistically significant (two-tailed, p <.01). These results indicated that there was a general tendency for schools with heavier concentrations of minority students to have larger percentages of minority school personnel.

TABLE III-7. PILOT ELEMENTARY SAMPLE: DISTRICT PERCENTAGES OF STAFF MEMBERS OF DIFFERENT RACIAL/ETHNIC GROUPS, BY HEW REGIONS*

HEW Region		Teachers				Administrators				Clerical			
		Black (N=20)	White (N=20)	Spanish (N=19)	Other (N=19)	Black (N=18)	White (N=19)	Spanish (N=19)	Other (N=19)	Black (N=20)	White (N=20)	Spanish (N=20)	Other (N=20)
II Metropolitan Northeast	$\bar{\%}$	27.00	71.50	0.50	1.00	48.00	79.00	3.00	0.0	17.00	77.50	5.50	99.00
	S.D.	25.46	24.75	0.71	0.0	36.77	9.90	4.24	0.0	8.49	0.71	7.78	171.47
	N	2	2	2	2	2	2	2	2	2	2	2	2
III Mid-Atlantic	$\bar{\%}$	48.00	50.00	0.33	0.0	41.00	55.50	0.75	2.75	29.00	64.75	0.0	6.25
	S.D.	16.99	19.22	0.58	0.0	30.53	34.06	1.50	5.50	17.46	28.48	0.0	12.50
	N	4	4	3	3	4	4	4	4	4	4	4	4
IV Southeast	$\bar{\%}$	55.83	31.33	1.50	11.33	30.75	39.20	0.80	15.60	31.17	54.33	2.00	11.83
	S.D.	23.56	23.06	3.67	27.76	11.06	35.86	1.79	34.88	37.55	44.91	4.90	28.99
	N	6	6	6	6	4	5	5	5	6	6	6	6
V North Midwest	$\bar{\%}$	38.00	61.00	0.0	1.00	13.00	19.00	0.0	0.0	25.00	18.00	0.0	0.0
	S.D.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	N	1	1	1	1	1	1	1	1	1	1	1	1
VI South Central	$\bar{\%}$	0.50	63.00	31.50	5.00	0.0	49.00	51.00	0.0	0.0	29.00	31.00	49.00
	S.D.	0.71	18.39	23.24	5.66	0.0	21.21	21.21	0.0	0.0	41.01	43.84	69.30
	N	2	2	2	2	2	2	2	2	2	2	2	2
VIII Western Mountain	$\bar{\%}$	10.00	85.00	4.00	1.00	9.00	84.00	6.00	1.00	5.00	88.00	6.00	1.00
	S.D.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	N	1	1	1	1	1	1	1	1	1	1	1	1
IX Pacific Southwest	$\bar{\%}$	20.75	62.75	14.00	2.50	27.00	55.25	16.75	1.00	20.75	50.75	27.00	1.50
	S.D.	25.71	13.96	14.31	3.70	34.96	26.26	25.03	2.00	33.28	22.98	28.39	1.73
	N	4	4	4	4	4	4	4	4	4	4	4	4

*Entries represent the mean values of the distribution of district percentages, the standard deviation of those percentages, and the number of districts.

TABLE III-8. SCHOOL PERCENTAGES OF STUDENTS OF DIFFERENT RACIAL/ETHNIC GROUPS*

Evaluation Sample		White/Anglo			Black			Spanish Background			Other**		
		$\overline{\%}$	S.D.	N	$\overline{\%}$	S.D.	N	$\overline{\%}$	S.D.	N	$\overline{\%}$	S.D.	N
Pilot Elementary	Cross-Sectional	18.08	15.86	24	66.33	34.61	24	14.71	30.71	24	0.63	1.72	24
	Longitudinal	20.19	16.29	16	67.64	30.82	16	11.06	29.46	16	0.56	1.75	16
Basic Elementary***	Cross-Sectional and Longitudinal	54.85	25.66	54	35.94	26.28	54	8.67	21.79	54	0.50	1.50	54
Basic Secondary	Cross-Sectional	63.45	31.14	29	31.83	30.03	29	1.52	2.49	29	0.32	0.77	28
	Longitudinal	56.94	34.63	16	41.56	35.39	16	1.19	2.46	16	0.06	0.25	16

*Entries represent the mean values of the distribution of school percentages, the standard deviation of those percentages, and the number of schools.

**This category represents the sum of the percentages of American Indian and Oriental in the sample schools.

***All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

TABLE III-8. FREQUENCY DISTRIBUTION OF SCHOOL PERCENTAGES OF TOTAL MINORITY STUDENTS*

Percentage of Minority Students	Pilot Elementary		Basic Elementary	Basic Secondary	
	Cross-Sectional	Longitudinal	Cross-Sectional and Longitudinal**	Cross-Sectional	Longitudinal
0-10	0	0	1	3	2
11-20	0	0	8	11	4
21-30	0	0	8	6	4
31-40	1	1	12	1	1
41-50	0	0	10	1	0
51-60	2	1	2	1	1
61-70	3	2	1	1	0
71-80	4	4	3	0	0
81-90	7	5	6	0	0
91-100	7	3	3	4	4
MEAN	81.67	79.56	45.11	34.54	42.81
N	24	16	54	28	16

*Entries are number of sample schools with specified percentage of minority students, the mean of that distribution, and the number of schools.

**All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

TABLE III-10. SCHOOL PERCENTAGES OF STAFF MEMBERS OF DIFFERENT RACIAL/ETHNIC GROUPS*

Evaluation Group		Teachers				Administrators				Clerical			
		White	Black	Spanish	Other	White	Black	Spanish	Other	White	Black	Spanish	Other
PILOT													
Cross-Sectional	$\overline{\%}$	48.54	41.30	9.11	1.22	44.92	33.73	16.00	1.35	41.32	40.58	14.00	2.58
	S.D.	23.94	28.57	19.11	3.2[illegible]	41.66	41.34	32.89	8.22	43.58	44.47	33.52	15.90
	N	37	37	37	37	37	37	37	37	38	38	38	38
Longitudinal	$\overline{\%}$	48.38	44.46	6.13	1.29	49.96	34.21	12.33	2.08	40.80	47.42	5.92	3.42
	S.D.	24.18	25.55	17.73	2.85	43.50	42.03	29.90	10.21	42.27	44.26	21.63	19.60
	N	24	24	24	24	24	24	24	24	25	25	25	25
BASIC ELEMENTARY**													
Cross-Sectional and Longitudinal	$\overline{\%}$	66.13	27.55	4.87	1.37	73.31	19.49	5.06	0.0	61.01	28.31	7.03	2.16
	S.D.	24.16	23.05	17.91	4.84	40.25	37.01	21.01	0.0	42.75	39.42	23.69	12.49
	N	67	67	67	67	68	68	68	68	70	70	70	70
BASIC SECONDARY													
Cross-Sectional	$\overline{\%}$	76.16	22.73	0.97	0.08	73.42	25.33	0.19	0.0	74.30	23.84	0.65	0.0
	S.D.	20.38	20.90	2.63	0.36	30.95	31.17	1.17	0.0	36.47	37.04	2.79	0.0
	N	37	37	37	37	36	36	36	36	37	37	37	37
Longitudinal	$\overline{\%}$	68.00	31.45	0.40	0.05	61.90	36.85	0.35	0.0	59.76	39.14	0.0	0.0
	S.D.	23.98	24.01	0.75	0.22	35.53	35.58	1.57	0.0	42.91	43.15	0.0	0.0
	N	20	20	20	20	20	20	20	20	21	21	21	21

*Entries represent the mean values of the school percentages, the standard deviation of those percentages, the standard deviation of those percentages, and the number of schools.

**All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

TABLE III-11. PEARSON CORRELATION BETWEEN STAFF AND STUDENT MINORITY COMPOSITION IN SAMPLE SCHOOLS*

A. Basic Elementary Sample

	Cross-Sectional and Longitudinal**			
	Percentage Minority Teachers	Percentage Minority Administrators	Percentage Minority Clerical	Percentage Minority Students
Percentage Minority Teachers	1.00	.63****	.58****	.66****
Percentage Minority Administrators		1.00	.60****	.58****
Percentage Non-Minority Teachers			1.00	.68****
Percentage Minority Students				1.00

B. Basic Secondary Sample

	Cross-Sectional				Longitudinal			
	Percentage Minority Teachers	Percentage Minority Administrators	Percentage Minority Clerical	Percentage Minority Students	Percentage Minority Teachers	Percentage Minority Administrators	Percentage Minority Clerical	Percentage Minority Students
Percentage Minority Teachers	1.00	.64****	.60****	.66****	1.00	.63****	.56****	.59****
Percentage Minority Administrators		1.00	.80****	.78****		1.00	.84****	.83****
Percentage Non-Minority Teachers			1.00	.89****			1.00	.96****
Percentage Minority Students				1.00				1.00

C. Pilot Elementary Sample

Percentage Minority Teachers	1.00	.13	.39***	.44***	1.00	-.10	.60****	.43
Percentage Minority Administrators		1.00	.30***	-.11		1.00	.29	-.34
Percentage Non-Minority Teachers			1.00	-.06			1.00	.17
Percentage Minority Students				1.00				1.00

*Each cell entry represents the correlation between the row and column percentage values intersecting at that cell.

**All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

***Statistically significant two-tailed, p <.05.

****Statistically significant two-tailed, p <.01.

b. Basic Secondary Sample

Tables III-8 and III-9 present the descriptive information on the racial/ethnic composition of the Basic Secondary sample schools. These schools averaged almost two-thirds White and one-third Black; the few remaining students were mostly Spanish. Despite the heavy concentration of Whites at this level, it is apparent from Table III-9 that there was considerable variability in the range of the school percentages. Over 70% of the schools had less than 30% minority students, but four sample schools had over 90% minority students.

Comparison of the racial/ethnic composition of the school staff in Table III-10 with that of the student body indicated that the average percentage of White teachers and staff was about 15% higher than the average percentage of White students. The correlation analysis, reported in Table III-11, showed a very strong correspondence between student and staff racial/ethnic make-up. The coefficients ranged in size from .56 to .96 and were all statistically significant (two-tailed, $p < .01$). As at the elementary level, there was a strong trend toward racial/ethnic correspondence between student and staff even though the actual percentage composition was not numerically the same.

c. Pilot Elementary Sample

In order to receive a Pilot award, a school must be minority-impacted; that is, its enrollment must be at least 50% minority. The actual mean percentage of minority students across the sample schools was approximately 82% minority (Tables III-8 and III-9). Over two-thirds of the students in Pilot sample schools were Black, and 18% of the students were White. The remaining 15% were almost entirely Spanish students.

The correspondence between student and staff racial/ethnic composition was not as close in the Pilot sample as in the Basic samples. On the average (Table III-10), only about 40% of the teachers and clerical staff in the sample Pilot schools were Black, while 66% of the students were Black. An even larger difference was found in the percentages of Black students and Black administrators. Furthermore, although the student minority composition correlated significantly (two-tailed, $p < .05$) with teacher composition, there was no significant correlation with administrative or clerical staff composition.

3. MINORITY COMPOSITION IN PAIRED TREATMENT/CONTROL SCHOOLS

Because of the possible relationship between student outcome performance and schools' racial/ethnic composition, it was important to determine how well the paired treatment and control schools were matched on percentages of minority students and staff. Table III-12 shows descriptive statistics for these percentages. In all three cross-sectional samples (Basic Elementary, Basic Secondary, and Pilot Elementary), a high degree of similarity is apparent between the treatment and control schools. Paired t-test comparisons showed no statistically significant differences in minority percentages (two-tailed, $p < .05$) between treatment and control schools for any sample. Thus, as required by the evaluation design, treatment and control schools were closely matched in terms of percentage of minority composition.

Of interest in Table III-12 is the comparison of minority composition between the cross-sectional and longitudinal Basic Secondary sample. The longitudinal sample had a higher average minority percentage in both students and staff. This would seem to indicate that the schools added to the sample at the start of Year Two had much lower minority percentages than the retained Year One schools, an indication that is confirmed by comparison of the Year One and Year Two cross-sectional sample results. In Year One, the Basic Secondary sample schools averaged about 43% minority students, with staff percentages varying between 25% and 40%. The corresponding Year Two figures indicate a lower (by about 10%) average percentage of minority students, with the staff discrepancy being of about the same magnitude. While these results indicate a shift in the make-up of the schools from the first to the second year, such a shift may result from inter-year changes in the award universe, rather than from changes within a given set of schools.

C. OTHER DISTRICT AND SCHOOL CHARACTERISTICS

Variables discussed in this section include other demographic characteristics of the sample districts and schools that might have an impact upon the evaluation context. They include the types of communities in which the schools and districts were located, the enrollments of the schools and districts, and the percentages of disadvantaged students within those enrollments.

1. COMMUNITY TYPE

Each district superintendent was asked to characterize the type of community in which the district was located by selecting one of ten categories. The categories reflected differences both in population and degree of urbanization. A similar task was performed by the sample school principals, but only district results are reported because of the high degree of correspondence.

a. Basic Elementary Sample

As reported in Table III-13, Basic Elementary district superintendents most often indicated their districts to be in middle-sized cities with populations of 50,000 to 200,000. Three out of every four Basic Elementary districts were located in either a city or a town, and almost 60% were located in a large or medium-sized city. Only about 10% of the districts were in rural communities.

b. Basic Secondary Sample

Over a third of the districts in the Basic Secondary sample were located in middle-sized cities, while almost two-thirds of all the districts were in some type of city. Rural areas and suburbs occurred infrequently in this sample.

TABLE III-12. PERCENTAGES OF MINORITY STUDENTS AND STAFF IN PAIRED TREATMENT AND CONTROL SCHOOLS*

Evaluation Sample			Students			Teachers			Administrators			Clerical		
			$\overline{\%}$	S.D.	N	$\overline{\%}$	S.D.	N	$\overline{\%}$	S.D.	N	$\overline{\%}$	S.D.	N
Pilot Elementary	Cross-Sectional	Treatment (N=18)	82.22	15.42	9	48.31	23.60	16	53.23	42.41	13	56.14	46.49	14
		Control (N=19)	80.83	18.17	12	54.62	22.56	17	50.11	43.19	18	53.28	46.10	18
	Longitudinal	Treatment (N=10)	82.80	17.12	5	49.50	24.30	10	49.50	45.68	8	54.67	45.44	9
		Control (N=12)	76.13	18.67	8	50.42	23.70	12	39.58	45.93	12	56.08	44.89	12
Basic Elementary**	Cross-Sectional and Longitudinal	Treatment (N=35)	42.84	24.37	25	33.49	25.19	33	23.67	40.77	33	36.77	43.10	35
		Control (N=34)	44.19	25.47	27	33.41	23.93	32	22.41	38.95	33	34.61	41.98	33
Basic Secondary	Cross-Sectional	Treatment (N=18)	35.08	32.71	12	19.82	17.33	17	21.19	32.19	16	25.06	39.33	17
		Control (N=17)	34.39	29.40	13	26.25	25.00	16	26.88	32.98	16	22.31	33.90	16
	Longitudinal	Treatment (N=8)	51.00	43.76	5	27.14	24.36	7	33.00	42.60	7	46.88	49.24	8
		Control (N=10)	41.38	35.62	8	36.11	29.28	9	40.33	37.98	9	36.00	40.26	9

*Cell entries represent the mean values of the school percentages, the standard deviations of those percentages, and the number of schools, excluding eight schools with both treatment and control sections.

**All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

TABLE III-13. COMMUNITY-SIZE DISTRIBUTION OF YEAR TWO SAMPLE DISTRICTS

Community Size		Pilot Elementary		Basic Elementary	Basic Secondary	
		Cross-Sectional	Longitudinal	Cross-Sectional and Longitudinal*	Cross-Sectional	Longitudinal
Large City Over 500,000	Frequency Percentage	4 16.7	1 6.7	5 14.3	3 15.8	3 27.8
Large City 200,000 to 500,000	Frequency Percentage	3 12.5	2 13.8	5 14.8	2 10.5	2 18.2
Suburb of a Large City	Frequency Percentage	1 4.2	0 0.0	3 8.6	1 5.3	0 0.0
Rural Area Near a Large City	Frequency Percentage	1 4.2	1 1.7	3 8.6	0 0.0	0 0.0
Middle-Sized City 50,000 to 200,000	Frequency Percentage	3 12.5	3 20.0	10 28.6	7 36.8	3 27.3
Suburb of a Middle-Sized City	Frequency Percentage	1 4.2	0 0.0	0 0.0	0 0.0	0 0.0
Rural Near a Middle-Sized City	Frequency Percentage	1 4.2	0 0.0	0 0.0	0 0.0	0 0.0
Small Town Less Than 50,000	Frequency Percentage	4 16.7	2 13.3	7 20.0	2 10.5	2 18.5
Rural Area Not Near a Large of Middle-Sized City	Frequency Percentage	4 16.7	4 26.7	1 2.9	2 10.5	1 9.1
Other	Frequency Percentage	2 8.3	2 13.3	1 2.9	2 10.5	0 0.0

*All Basic Elementary districts in the Year Two cross-sectional sample were also in the longitudinal sample.

c. Pilot Elementary Sample

The Pilot Elementary sample was also concentrated in urban locations. About 50% of the sample districts were in cities or towns, and more than half of these were in cities. More Pilot than Basic districts were located in the suburbs and rural areas. One-fourth of the Pilot districts were in rural areas.

Overall, results of the analysis of community type indicate that districts in all three evaluation samples were concentrated in urban centers. However, the Pilot and Basic Elementary samples showed a somewhat wider diversity of community type than the Basic Secondary sample.

Paired t-tests were conducted on differences in community type for the treatment and control schools. The results showed that there were no significant differences (two-tailed, $p > .05$) for any of the samples, indicating that the matching procedure was successful with respect to community location.

2. DISTRICT AND SCHOOL ENROLLMENTS

The size of the district and school provides an important contextual variable. Often the size of enrollment has been found to relate to achievement. Further, these variables can have an impact on the resources and services available to the students. A description of the district average daily attendance (ADA) and the school enrollment is provided in Tables III-14 and III-15.

a. Basic Elementary Sample

The Basic Elementary districts varied considerably in size, with ADAs ranging from about 2,500 pupils to over 100,000 pupils. The majority of districts ranged from 8,000 to 50,000 students. These figures reflect the heavy concentration of urban districts, which are typically larger than districts in rural areas.

Table III-15 shows the distribution of school enrollments, which were somewhat less variable than district enrollments. The average school had 545 students, and over 50% of the schools had between 300 and 600 pupils.

b. Basic Secondary Sample

Districts in the Basic Secondary sample tended to have more students and less variability in ADA than those in the Basic Elementary sample, with the majority of districts having between 20,000 and 50,000 students.

As at the district level, the Basic Secondary sample schools had higher enrollments than the Basic Elementary sample schools. The average enrollment was almost 1,500 students, or three times the Basic Elementary average. Further, there was considerable variability in this distribution, as enrollments ranged from less than 400 pupils to over 2,500 pupils.

TABLE III-14. DISTRIBUTION OF YEAR TWO SAMPLE DISTRICT AVERAGE DAILY ATTENDANCE (ADA)

Average Daily Attendance	Pilot Elementary		Basic Elementary	Basic Secondary	
	Cross-Sectional	Longitudinal	Cross-Sectional and Longitudinal*	Cross-Sectional	Longitudinal
401-1,000	1	1	0	0	0
1,001-1,500	2	1	0	0	0
1,501-2,000	4	3	0	0	0
2,001-2,500	0	0	0	1	0
2,501-3,000	1	1	1	0	0
3,001-3,500	1	1	1	0	0
3,501-4,000	0	0	1	0	0
4,001-4,500	1	0	1	0	0
4,501-5,000	1	0	1	0	0
5,001-6,000	0	0	1	0	0
6,001-7,000	0	0	1	2	2
7,001-8,000	1	0	3	0	0
8,001-9,000	2	2	5	1	1
9,001-10,000	1	1	1	0	0
10,001-15,000	2	1	3	0	0
15,001-20,000	0	0	1	0	0
20,001-30,000	1	0	5	5	3
30,001-40,000	1	0	3	3	1
40,001-50,000	1	1	3	2	0
50,001-60,000	1	1	1	0	0
60,001-70,000	0	0	1	1	1
70,001-100,000	1	0	1	2	1
100,001-200,000	0	0	1	2	2
200,000+	1	1	0	0	0
N	23	14	35	19	11

*All Basic Elementary districts in the Year Two cross-sectional sample were also in the longitudinal sample.

TABLE III-15. DISTRIBUTION OF YEAR TWO SAMPLE SCHOOL ENROLLMENTS

A. Basic Elementary Sample

School Enrollment	Cross-Sectional and Longitudinal*	
	Frequency	Percentage
0-100	0	0.0
101-200	1	1.4
201-300	3	4.2
301-400	15	21.1
401-500	18	25.4
501-600	12	16.9
601-700	5	7.0
701-800	7	9.9
801-900	5	7.0
901-1,000	3	4.2
1,001-1,200	1	1.4
1,201-1,400	1	1.4
1,401-1,700	0	0.0
1,701-2,000	0	0.0
2,001-2,500	0	0.0
2,500+	0	0.0
TOTAL	71	100
$\overline{X}$	544.86	
S.D.	216.37	

*All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

B. Basic Secondary Sample

School Enrollment	Cross-Sectional		Longitudinal	
	Frequency	Percentage	Frequency	Percentage
0-100	0	0.0	0	0.0
101-200	0	0.0	0	0.0
201-300	0	0.0	0	0.0
301-400	2	4.5	1	4.2
401-500	1	2.3	0	0.0
501-600	2	4.5	1	4.2
601-700	2	4.5	1	4.2
701-800	3	6.8	3	12.5
801-900	1	2.3	1	4.2
901-1,000	1	2.3	1	4.2
1,001-1,200	4	9.1	2	8.3
1,201-1,400	1	2.3	1	4.2
1,401-1,700	10	22.7	5	20.8
1,700-2,000	8	18.2	5	20.8
2,001-2,500	4	9.1	1	4.2
2,500+	5	11.4	2	8.3
TOTAL	44	100	24	100
$\overline{X}$	1489.36		1410.13	
S.D.	673.15		498.44	

TABLE III-15. DISTRIBUTION OF YEAR TWO SAMPLE SCHOOL ENROLLMENTS (CONT.)

C. Pilot Elementary Sample

School Enrollment	Cross-Sectional		Longitudinal	
	Frequency	Percentage	Frequency	Percentage
0-100	0	0.0	0	0.0
101-200	2	4.5	0	0.0
201-300	4	9.1	2	7.7
301-400	9	20.5	5	19.2
401-500	4	9.1	2	7.7
501-600	7	15.9	5	19.2
601-700	5	11.4	5	19.2
701-800	4	9.1	1	3.8
801-900	4	9.1	2	7.7
901-1,000	3	6.8	3	11.5
1,101-1,200	1	2.3	0	0.0
1,201-1,400	1	2.3	1	3.8
1,401-1,700	0	0.0	0	0.0
1,701-2,000	0	0.0	0	0.0
2,001-2,500	0	0.0	0	0.0
2,500+	0	0.0	0	0.0
TOTAL	44	100	26	100
$\overline{X}$	569.23		606.31	
S.D.	274.12		265.62	

c. Pilot Elementary Sample

On the average, districts in the Pilot Elementary sample were smaller than those in the Basic Elementary sample, with one-fourth of the districts having an ADA of only 1,000 to 2,000 students. This mean may be somewhat difficult to interpret, however, because of the great heterogeneity in size of the Pilot sample districts. District ADAs ranged from under 1,000 to over 200,000 with a fairly even distribution across that entire range.

At the school level, the Pilot sample results were similar to those for the Basic Elementary sample. Both samples had average enrollments of about 550 students. The dispersions of the two elementary samples were also very similar.

Results of the analyses of district and school size agree fairly well with the data on community type. Both sets of data suggest a tendency for the sample schools and districts to be large and urban, particularly in the Basic Secondary sample. The Pilot sample had slightly larger percentages of small rural districts than the Basic samples.

Paired t-tests were conducted to investigate whether there were any differences in enrollment between the matched treatment and control schools; there were no statistically significant differences (two-tailed, $p < .05$) in any of the three samples.

3. PERCENTAGE OF DISADVANTAGED STUDENTS IN DISTRICTS AND SCHOOLS

The number of disadvantaged students in the sample districts and schools provided an index of their socioeconomic status. Estimates about the numbers of such students were obtained from district superintendents and from principals. In each case, the respondent was asked to indicate the approximate percentage of students who met the qualifications for participation in ESEA Title I. Estimates at the district and school levels are not directly comparable, as district eligibility criteria are based solely on economic need while school-level criteria reflect both economic and academic need.

a. Basic Elementary Sample

The average percentages of students reported eligible for ESEA Title I services in the participating districts are shown in Table III-16. In six of the eight HEW regions, the district averages were in the range of 12% to 24%, while the other two regions, IV (Southeast) and VI (South Central), both had mean values of about 44%. The last two regions, as previously noted, contained the majority of sample districts and had the highest direct average percentages of minority students in the sample.

Percentages of disadvantaged students at the school level are shown in Table III-17. This table contains the average percentages of disadvantaged students in the paired treatment and control schools. While control schools in the sample had higher average percentages of disadvantaged students than treatment schools, no statistically significant differences were found in paired t-test comparisons (two-tailed, $p > .05$).

b. Basic Secondary Sample

As shown in Table III-16, Basic Secondary sample districts were fairly homogeneous with respect to Title I eligibility, with about 30% of the students in most districts being eligible. This proportion was similar to the overall district average for the Basic Elementary level.

At the school level (Table III-17), there were more marked differences in the level of disadvantagement between the Basic Elementary and Secondary samples. Basic Secondary schools averaged somewhat less than 20% disadvantaged students, or about half the percentage at the elementary level. No statistically significant (two-tailed, $p > .05$) treatment/control school differences were found when paired t-tests were performed.

c. Pilot Elementary Sample

Pilot sample districts had a higher percentage of disadvantaged students than either of the Basic samples (an average of about 40%). There was considerable variability across HEW regions, with Region IV (Southeast) containing the highest district average percentage of disadvantaged students.

TABLE III-16. YEAR TWO SAMPLE DISTRICT PERCENTAGES OF TITLE I-ELIGIBLE STUDENTS, BY HEW REGION

HEW Region		Pilot Elementary		Basic Elementary	Basic Secondary	
		Cross-Sectional	Longitudinal	Cross-Sectional and Longitudinal*	Cross-Sectional	Longitudinal
II Metropolitan Northeast	$\overline{\%}$	44.00	35.00	20.00	-	-
	S.D.	12.73	0.0	0.0		
	N	2	1	1		
III Mid-Atlantic	$\overline{\%}$	27.00	27.00	23.00	-	-
	S.D.	3.61	3.61	0.0		
	N	3	3	1		
IV Southeast	$\overline{\%}$	69.00	69.00	43.20	33.80	27.25
	S.D.	13.08	13.08	31.16	18.27	12.61
	N	3	3	5	5	4
V North Midwest	$\overline{\%}$	49.00	49.00	20.00	17.50	-
	S.D.	0.0	0.0	0.0	0.0	
	N	1	1	2	2	
VI South Central	$\overline{\%}$	28.00	28.00	44.25	29.33	29.33
	S.D.	0.0	0.0	22.6	13.87	13.87
	N	1	1	4	3	3
VII Central Midwest	$\overline{\%}$	-	-	13.00	-	-
	S.D.			2.83		
	N			2		
VIII Western Mountain	$\overline{\%}$	-	-	-	-	-
	S.D.					
	N					
IX Pacific Southwest	$\overline{\%}$	34.00	34.00	12.00	-	-
	S.D.	0.0	0.0	0.0		
	N	1	1	1		
X Pacific Northwest	$\overline{\%}$	-	-	24.33	-	-
	S.D.			6.03		
	N			3		

*All Basic Elementary districts in the Year two cross-sectional sample were also in the longitudinal sample.

The results in Table III-17 also showed a higher incidence of disadvantagement in the Pilot schools compared with schools from the two Basic samples. There was no statistically significant difference (two-tailed, $p > .05$) in this variable between the paired treatment and control schools.

TABLE III-17. PERCENTAGES OF TITLE I-ELIGIBLE STUDENTS IN PAIRED TREATMENT AND CONTROL SCHOOLS

Evaluation Sample		Treatment Schools in Treatment/ Control Pairs			Control Schools in Treatment/ Control Pairs		
		$\overline{\%}$	S.D.	N	$\overline{\%}$	S.D.	N
Pilot Elementary	Cross-Sectional	57.00	23.64	15	53.19	27.47	15
	Longitudinal	55.63	17.68	8	57.36	22.45	11
Basic Elementary	Cross-Sectional and Longitudinal*	44.18	27.29	22	50.42	28.94	19
Basic Secondary	Cross-Sectional	20.07	21.52	15	15.18	15.60	11
	Longitudinal	28.83	28.29	6	17.71	19.50	7

*All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

D. RELATIONSHIP OF DISTRICT AND SCHOOL CHARACTERISTICS TO SCORES ON ACHIEVEMENT TESTS AND SCHOOL CLIMATE INSTRUMENT

This section investigates the relationship between certain demographic variables and initial student achievement and School Climate Questionnaire levels. Initial achievement test performance in reading and mathematics was measured by a published standardized instrument. The School Climate Questionnaire (SCQ) asked the pupil to express his attitudes toward various aspects of school. There were two scales for the elementary sample: Teacher-Student Interaction (TSI) and Treatment by Principal (TP). At the secondary level, six scales were presented: Teacher-Student Interaction (TSI), Treatment by Administrators I (AD1), Treatment by Administrators II (AD2), Perceived School Discrimination (PSD), Student Intergroup Relations (SIR), and Index of Alienation (IAL). (A more complete discussion of the development and characteristics of the SCQ is provided in the next chapter.) The demographic characteristics examined in relation to those measures were percentage of minority students and staff, community type, school enrollment, and school percentage of disadvantaged students.

The methodology employed in this investigation was correlational, viz, stepwise multiple regression. This technique was chosen because of the known interrelatedness of many of the school demographic characteristics (Appendix C contains the correlation matrix of these variables for each evaluation sample). The regression analysis allowed the identification of a set of demographic variables that, taken together, related maximally to initial student outcome. It should be stressed that because of the correlational and non-experimental nature of this analysis, no causal relationships can be directly inferred from the results reported in this section. The intent of these analyses is simply to provide a characterization of the schools that achieved different levels of student outcome performance.

1. BASIC ELEMENTARY SAMPLE

The demographic variables related quite strongly to the initial levels of achievement on the standardized reading and mathematics tests. For both outcome measures, the single most important contextual variable was the percentage of disadvantaged students in the school. Also related, but less strongly, were the percentages of minority students and staff in the school. Together with community type, these variables accounted for almost 50% of the initial mathematics variance and 60% of the initial reading variance (R = .70 and R = .78). The results indicate that schools with lower initial achievement tended to have larger percentages of disadvantaged and of minority students, and to be located in less urbanized areas.

No meaningful relationship (R = .25 and R = .26) was found between students' racial/ethnic composition or the percentage of disadvantaged students and initial SCQ levels on either the TSI or TP scale. This finding may indicate that the students' initial perception of school was not related to the demographic characteristics of the school, although it is also possible that the instrument itself was not sufficiently sensitive. Neither the enrollment sizes of the district and school nor the type of community showed any statistically significant relationships with either achievement or SCQ level.

2. BASIC SECONDARY SAMPLE

As at the elementary level, there was a strong relationship between the demographic variables and initial standardized achievement test performance. The percentage of disadvantaged students, percentages of minority students and staff, and community type combined to explain about 50% of the reading and mathematics variance (R = .67 and R = .72, respectively). Of these variables, the percentage of disadvantaged students was the single most important predictor. As at the elementary level, lower-achieving schools were characterized by larger percentages of disadvantaged students and of minority students, and locations in less urbanized communities.

Only one significant regression was found between the demographic variables and the six SCQ scales. This occurred with the Treatment by Administrator II scale (R = .84 with 5,15 df.), and indicated that students in schools with higher disadvantagement and minority composition were more likely to have poorer initial attitudes toward their treatment by administrators. The remaining scales had multiple correlations with the demographic variables ranging from .45 to .56; these correlations were statistically non-significant (two-tailed, p >.05, 5,15 df.).

3. PILOT ELEMENTARY SAMPLE

Results for this sample contrast markedly with those reported for the Basic samples. Possibly because of the restricted range of some of the demographic characteristics in Pilot schools, notably the minority composition and percentage of disadvantaged, no statistically significant regressions (two-tailed, p >.05 with 1,16 df.) were found between those characteristics and achievement levels. The set of variables that had predicted well in the Basic samples produced multiple correlations in the Pilot sample of only about .40 (two-tailed, p >.05 with 6,11 df.), or 16% of the variance.

The same pattern was found in the regression of the demographic variables on initial SCQ level. The multiple correlations, which ranged from .36 to .56, were not statistically significant (two-tailed, p >.05 with 6,11 df.).

E. SUMMARY

- More than half of the districts in each of the three cross-sectional samples were in HEW Regions IV (Southeast) and VI (South Central). By contrast, there were no sample districts in Region I (New England), and few in Regions VII (Central Midwest) and VIII (Western Mountain).

- A moderate degree of correspondence was found between the geographic distributions of the Year Two award universe districts and the Year Two sample districts.

- The racial/ethnic composition of the Basic Elementary and Secondary schools varied widely, but averaged over 50% White students. The Pilot sample schools, by contrast, averaged around 80% minority students.

- For both Basic samples, correlations of the staff and student racial/ethnic composition indicated a moderate degree of correspondence in minority percentages. In the Pilot sample, the correlation was statistically significant only between teacher and student minority composition. In all samples, there was a higher percentage of Whites at the staff level than at the student level; this difference was particularly marked in the Pilot sample.

- Examination of the school and district demographic characteristics indicated that the evaluation sample tended to be from urban, populous centers and that the Pilot sample had a larger percentage of disadvantaged students than the Basic samples.

- In the Basic Elementary and Secondary samples, schools with lower initial scores on standardized achievement tests had larger percentages of disadvantaged and of minority students. Such a relationship was not found in the Pilot sample, probably because of the relatively small range of minority and disadvantaged percentages in that sample. SCQ performance was not related to school characteristics in any of the three samples.

- The lack of statistically significant differences in percentage of minority students and staff, community type, enrollment, and percentage of disadvantaged students between the treatment and control schools provides strong evidence of the success of the matching procedure. Further, it helps to insure that the influence of contextual variables should be at a minimum in all other paired comparison analyses.

CHAPTER IV

FAMILY AND STUDENT CHARACTERISTICS

Several characteristics of the sample students and their families are described in this chapter, including family composition, parents' education and occupation, family socioeconomic status, sex, racial/ethnic background, and initial achievement level. Student attitudes and student perceptions of school climate as it related to desegregation are also explored. The results are discussed separately for each of the three evaluation samples (Basic Elementary, Basic Secondary, and Pilot Elementary).

Analysis results presented here should be read and interpreted with two general considerations in mind. First, the data reported in this chapter have been derived from questionnaires completed by a number of different people. While the source of the data on each characteristic has been identified, it is important to note that data from different sources may need to be interpreted differently. For example, most of the information on the family characteristics of the sample students was obtained from a questionnaire completed by the teacher. Thus the accuracy of such information depended upon the teacher's knowledge about each student.

Second, since "treatment" and "control" designations were most meaningful at the school level (where the ESAA funds were introduced), all treatment-control comparisons of student and family characteristics were performed at the school level. That is, student data were aggregated within a school to arrive at a single school value for each characteristic. Thus, the results of treatment-control comparisons reflect differences between the average values of the paired schools.

A. FAMILY CHARACTERISTICS

The description of family characteristics focused on family composition, parents' education and occupation, and socioeconomic status. The information on family composition and parents' education and occupation was obtained from a questionnaire completed by the teacher for each student. Information on the socioeconomic status of the family was obtained directly from the student.

1. BASIC ELEMENTARY SAMPLE

Family composition was examined by two slightly different methods. Teachers were asked whether the student's father was present in the home, and whether the student's mother was present in the home; in addition, a count was made to determine whether both, one, or neither of the parents lived with the student. No distinction was made between natural and legal parents; the items asked about "father (stepfather)" and "mother (stepmother)."

A summary of family characteristics for students in the Basic Elementary sample is presented in Table IV-1. Since the longitudinal results closely parallel those for the cross-sectional sample, the discussion will focus only on the cross-sectional sample.

Almost all sample students (92%) lived with their mothers and over 70% lived with their fathers. As might be expected, a larger percentage of non-minority students than of minority students lived with at least one parent. The item showing the largest differences between minority and non-minority students was the one that asked whether the father lived in the home.

A moderate percentage (61%) of the total sample of students lived with both parents. Approximately equal percentages of students lived with one parent or did not live with their parents. Almost 85% of the non-minority students, and only about 63% of the minority students, lived with both parents, while a larger percentage of minority students than of non-minority students lived with one parent (32% vs. 14%).

About 40% of both the mothers and the fathers of the sample students completed high school. Only 12% of the mothers and 19% of the fathers completed college. About the same percentage of minority and non-minority fathers completed high school. Among the mothers, a larger percentage of non-minority mothers than of minority mothers completed high school. The largest discrepancy between minority and non-minority parents was in terms of college education. About 28% of the non-minority fathers and 18% of the mothers completed college, while the corresponding percentages for the minority parents were 8% of the fathers and 6% of the mothers.

Information about parents' occupations was obtained from a questionnaire completed by the teacher for each student. Occupations were grouped into three categories: service/operative/labor, clerical/crafts/sales/technical, professional/managerial. A fourth category, "housewife," was added for women. As shown in Table IV-1, approximately half of the mothers fell into the housewife category, and about equal percentages (23% and 17%) were in the service and clerical categories. Slightly fewer than 10% of the mothers were employed at the professional/managerial level.

A larger percentage of mothers of minority students than of non-minority mothers were employed in service/labor occupations. The non-minority mothers were more likely to be housewives or to be employed in clerical/technical occupations.

Almost 50% of the fathers were employed in a service/labor occupation. The remaining half were evenly split between the other two categories. As with mothers' occupations, larger percentages of non-minority fathers were found in the professional/managerial and clerical/technical categories. Almost twice as many minority fathers as non-minority fathers were in the service/labor category.

TABLE IV-1. BASIC ELEMENTARY SAMPLE STUDENTS: FAMILY CHARACTERISTICS

Characteristics	Cross-Sectional			Longitudinal		
	Total	Minority	Non-Minority	Total	Minority	Non-Minority
Family Composition						
Student lives with:						
father (stepfather)	72.7	62.7	84.3	72.2	62.6	85.1
mother (stepmother)	92.4	90.9	94.6	92.1	90.9	94.8
one parent	19.4	31.9	13.9	19.4	31.9	12.9
both parents	61.0	62.9	84.3	60.5	62.9	85.4
neither parent	19.6	5.2	1.9	20.1	5.2	1.7
Parent Education						
Mother completed:						
high school	44.0	40.5	47.5	42.3	39.7	45.3
college	11.7	5.9	17.5	12.5	6.2	20.2
Father completed:						
high school	38.8	38.9	38.7	38.4	40.1	36.6
college	18.8	7.5	28.3	20.0	7.9	31.7
Parent Occupation						
Mother:						
housewife	50.9	46.2	55.6	49.0	43.9	54.9
service/operative/labor	22.6	32.6	12.5	23.8	34.0	12.1
clerical/crafts/sales/technical	17.4	13.8	21.2	17.5	14.4	21.0
professional/managerial	9.0	7.3	10.8	9.7	7.8	12.0
Father:						
service/operative/labor	49.8	69.4	33.6	50.6	69.5	33.1
clerical/crafts/sales/technical	25.0	19.1	29.9	23.5	18.9	27.8
professional/managerial	25.1	11.5	36.5	25.9	11.6	39.1
Socioeconomic Status						
Reading-Related Items*	4.51	4.11	4.96	4.71	4.37	4.16
Luxury Items*	7.05	6.40	7.80	7.17	6.55	7.98

*Tabled values represent average number of items.

Two measures of socioeconomic status (SES) were calculated, based on different types of possessions present in the home (as reported by students in questionnaire responses). The first measure, "SES/reading," was a count of the number of reading-related items (such as newspapers and dictionaries) in the home, out of a possible six. The second measure, "SES/luxury possessions," was a count of the number of convenience or luxury items (telephone, TV, dishwasher, etc.) in the home, out of a possible 10. Mean values for the two scales are reported in Table IV-1. The mean number of reading-related items for the Basic Elementary sample was 4.5, and the mean for convenience or luxury items was 7.0. A mean of 7.0 out of 10 may seem high for this sample; however, many of the items counted were very common, and a high mean should not be interpreted as indicating high socioeconomic status.

As might be expected, minority students in the Basic Elementary sample reported fewer items on both scales than did their non-minority peers (4.1 vs. 5.0 reading-related items and 6.4 vs. 7.8 luxury items).

2. BASIC SECONDARY SAMPLE

Results of the analyses of family characteristics for students in the Basic Secondary sample are shown in Table IV-2. About 82% of the students lived with their mothers, while only 69% lived with their fathers. Larger percentages of non-minority than of minority students lived with at least one parent. The distribution of students living with one or both parents was almost identical to the one reported for the Basic Elementary students. Well over half (65%) of the students lived with both parents, with the remaining percentage fairly evenly split between those living with one parent and those living with neither parent. Once again, larger percentages of non-minority students lived with both parents, while minority students were more likely to live with one parent.

The results for parents' education were also markedly similar to those for the Basic Elementary sample. About 42% of the mothers and a third of the fathers completed high school. More parents in this sample (19% of the mothers and 25% of the fathers) completed college than in the Basic Elementary sample. Non-minority parents (both mothers and fathers) were more likely to have completed either high school or college than minority parents.

Slightly less than half (48%) of the mothers were housewives. Approximately equal (15%-22%) percentages of mothers were in the other three categories. Over a third (38%) of the fathers were in service/operative/labor positions, 25% in clerical/crafts/sales/technical jobs, and 37% in professional/managerial positions. As in the Basic Elementary sample, minority mothers were more likely to be clerical workers. Almost twice as many non-minority fathers as minority fathers were employed in professional/managerial jobs.

In the Basic Secondary sample, the mean number of reading-related items was 5.0 and the mean number of luxury-related items was 7.4. Minority students reported fewer items in both categories than did non-minority students: 4.5 vs. 5.4 reading-related items and 6.3 vs. 8.2 luxury items.

TABLE IV-2. BASIC SECONDARY SAMPLE STUDENTS: FAMILY CHARACTERISTICS

Characteristics	Cross-Sectional			Longitudinal		
	Total	Minority	Non-Minority	Total	Minority	Non-Minority
Family Composition						
Student lives with:						
father (stepfather)	68.6	53.8	79.4	64.2	50.5	80.3
mother (stepmother)	82.2	77.6	85.7	82.1	79.6	85.1
one parent	19.2	34.0	13.2	25.2	38.9	15.2
both parents	65.2	58.0	84.6	61.5	54.2	82.8
neither parents	15.7	8.0	2.2	13.3	6.9	1.9
Parent Education						
Mother completed:						
high school	42.0	34.0	47.5	36.6	32.4	41.1
college	18.6	14.4	21.2	22.2	17.4	26.7
Father completed:						
high school	33.1	30.9	35.0	32.5	33.5	31.0
college	25.5	13.7	32.1	24.7	13.5	35.0
Parent Occupation						
Mother:						
housewife	47.5	47.5	47.9	46.0	44.1	47.6
service/operative/labor	15.4	23.7	10.0	18.1	25.0	11.2
clerical/crafts/sales/technical	21.7	13.4	26.5	19.1	14.1	24.3
professional/managerial	15.5	15.4	15.6	16.9	16.9	17.0
Father:						
service/operative/labor	36.6	53.9	26.7	37.5	20.8	24.2
clerical/crafts/sales/technical	24.4	22.0	25.7	22.9	20.8	24.2
professional/managerial	37.2	21.7	46.4	38.2	21.6	53.9
Socioeconomic Status						
Reading-Related Items*	5.01	4.46	5.41	4.98	4.54	5.46
Luxury Items*	7.41	6.30	8.22	7.14	6.23	8.19

*Tabled values represent average number of items.

3. PILOT ELEMENTARY SAMPLE

Information on family characteristics for the Pilot Elementary sample is displayed in Table IV-3. In terms of family composition, the results were similar to those reported for the two Basic samples. Almost nine out of ten (87%) students lived with their mothers, while about 65% lived with their fathers. As before, a larger percentage of non-minority students than of minority students lived with either parent. Over half of the students lived with both parents, and more non-minority than minority students were in this group.

While roughly the same percentages of parents graduated from high school in the Pilot sample as in the Basic samples, a much smaller percentage had completed a four-year college (4% of the mothers and 6% of the fathers). Minority parents were less likely to complete college than were non-minority parents.

Half of the mothers were housewives, and over one-fourth (29%) were employed in service/operative/labor jobs. The non-minority mothers were more likely to be housewives, while a much larger percentage of minority mothers than of non-minority mothers worked in service occupations.

Two-thirds of the fathers were employed in service/operative/labor occupations. The percentage of non-minority fathers in professional/managerial occupations was more than twice as large as the percentage of minority fathers.

Students in the Pilot sample reported fewer items in both categories than did students in the Basic samples. The mean number of reading-related items for Pilot students was 4.1, and the mean for luxury items was 6.3. As in the other samples, minority students reported fewer items than did non-minority students: 4.0 vs. 4.6 reading-related items, and 6.2 vs. 7.0 luxury items.

B. STUDENT CHARACTERISTICS

The student characteristics reported in this section included sex, racial/ethnic group, initial achievement-test scores, and student attitudes, beliefs, and expectations with regard to school and to students of other racial/ethnic groups.

1. SEX

Information on the sex distribution of the participating students was obtained from the student questionnaires. In all three samples, there were nearly equal numbers of girls and boys, with the percentage of boys ranging from 51% in the Basic Elementary sample to 52% in the other two samples.

2. RACIAL/ETHNIC COMPOSITION

Information on the racial/ethnic composition of the sample students was provided by the teachers. Each student was placed into one of five categories: American Indian, Asian American, Black, Spanish-background, or White.

TABLE IV-3. PILOT ELEMENTARY SAMPLE STUDENTS: FAMILY CHARACTERISTICS

Characteristics	Cross-Sectional			Longitudinal		
	Total	Minority	Non-Minority	Total	Minority	Non-Minority
Family Composition						
Student lives with:						
father (stepfather)	64.2	64.0	79.7	66.2	63.6	85.8
mother (stepmother)	87.2	89.7	91.4	91.5	91.2	94.7
one parent	22.6	30.0	18.6	20.5	30.1	15.2
both parents	52.6	64.5	79.0	48.4	64.1	84.8
neither parents	24.8	5.5	2.4	31.0	5.8	0.0
Parent Education						
Mother completed:						
high school	43.4	42.7	46.8	46.1	46.7	41.3
college	4.1	3.2	8.5	4.7	3.4	12.7
Father completed:						
high school	42.1	41.8	43.8	44.8	46.6	35.6
college	5.7	4.1	12.9	6.3	4.7	14.4
Parent Occupation						
Mother:						
housewife	50.8	49.8	56.8	45.4	44.0	55.5
service/operative/labor	28.5	30.6	16.5	32.8	35.4	15.3
clerical/crafts/sales/technical	14.3	13.4	19.4	15.2	14.6	18.2
professional/managerial	6.3	6.1	7.2	6.7	5.9	10.9
Father:						
service/operative/labor	67.9	70.7	53.8	68.4	71.0	53.6
clerical/crafts, sales/technical	21.6	20.9	24.7	20.9	20.8	21.6
professional/managerial	10.6	8.3	21.5	10.7	8.2	24.8
Socioeconomic Status						
Reading-Related Items*	4.12	4.01	4.63	4.29	4.22	4.79
Luxury Items*	6.32	6.22	6.95	6.47	6.40	6.96

*Tabled values represent average number of items.

a. Basic Elementary Sample

The racial/ethnic composition of Basic Elementary sample students in the three participating grades is displayed in Table IV-4. The results show that racial/ethnic composition was relatively consistent across the three grades. Whites constituted about 47% of the sample, while approximately 40% of the students were Black. Spanish students accounted for only 10% of the sample. (The under-representation of this group was discussed in detail in Chapter II.)

b. Basic Secondary Sample

Results for this sample, as shown in Table IV-4, indicate that a higher percentage (approximately 59%) of the students were White than in the Basic Elementary sample. Almost 40% of the students were Black, and a very small percentage (less than 2%) were from the remaining three racial/ethnic groups. These percentages varied little across the three grade levels.

c. Pilot Elementary Sample

As expected, because of eligibility requirements for the Pilot program, the Pilot Elementary sample was heavily minority. Table IV-4 shows that almost 85% of the students were from minority groups, with Whites constituting only about 14% of the sample and Blacks making up approximately 66%. The largest percentage of Spanish students (15%-19%) occurred in this sample.

3. INITIAL ACHIEVEMENT TEST PERFORMANCE

All elementary and secondary students in the Year Two Basic and Pilot samples were pretested in fall 1974 to obtain initial measures of their reading and mathematics skills. The tests included items on reading vocabulary, reading comprehension, math concepts, math computations, and, at the secondary level only, math problems.

a. Basic Elementary Sample

The percentile ranks and grade equivalents for the mean pretest scores of Basic Elementary students from both Year One and Year Two are shown in Table IV-5. At all grade levels in Year Two, the students had higher percentile ranks in reading than in mathematics, but for both content areas the percentile ranks ranged from the low twenties to the low thirties for both the treatment and the control groups.

Third-grade students scored about the same on the achievement pretest in Year Two as in Year One. At the fourth-grade level, the Year Two students scored slightly higher than the Year One students. The fifth-grade students in Year Two scored about the same in reading as the Year One fifth-graders, but lower in math.

TABLE IV-4. RACIAL/ETHNIC COMPOSITION BY GRADE LEVEL OF THE BASIC ELEMENTARY, BASIC SECONDARY, AND PILOT SAMPLES

Racial/ Ethnic Group	Percentage of Students								
	Basic Elementary			Basic Secondary			Pilot Elementary		
	Grade 3	Grade 4	Grade 5	Grade 10	Grade 11	Grade 12	Grade 3	Grade 4	Grade 5
American Indian	0.4	0.4	0.5	0.4	0.4	0.3	2.4	1.6	2.5
Asian American	2.2	2.2	2.4	0.6	0.8	0.3	0.5	0.4	0.6
Black	39.2	40.7	40.6	39.2	38.2	39.3	62.1	68.3	66.8
Spanish-Background	9.8	9.1	10.2	1.8	1.5	1.0	19.3	15.3	16.7
White	48.3	47.6	46.2	58.0	59.1	59.0	15.7	14.4	13.3

TABLE IV-5. BASIC ELEMENTARY SAMPLE: PRETEST LEVELS ON CALIFORNIA ACHIEVEMENT TEST

Year	Grade Level	Reading		Mathematics	
		Percentile	Grade Equivalent	Percentile	Grade Equivalent
Year Two	3	37	2.7	22	2.4
	4	31	3.2	23	3.2
	5	29	4.0	19	3.8
Year One	3	35	2.6	22	2.4
	4	28	3.1	21	3.2
	5	29	4.0	27	4.2

b. Basic Secondary Sample

Percentile ranks and grade equivalents for the mean pretest scores of the Basic Secondary students are shown in Table IV-6. Since reading achievement was measured by the Iowa Silent Reading Test and mathematics by the California Achievement Test, it is not appropriate to compare the reading and math scores to ascertain relative performance. In reading, the performance of the Year Two sample was uniform for grades 11 and 12 (32nd percentile), but was slightly lower in grade 10 (27th percentile). The mathematics performance was consistently at the 28th percentile.

TABLE IV-6. BASIC SECONDARY SAMPLE: PRETEST LEVELS ON ACHIEVEMENT TESTS

Year	Grade Level	Iowa Silent Reading Test Reading		California Achievement Test Mathematics	
		Percentile	Grade Equivalent	Percentile	Grade Equivalent
Year Two	10	27	-	28	8.3
	11	32	-	28	8.9
	12	33	-	28	9.2
Year One	10	30	-	23	7.9
	11	32	-	21	8.3
	12	34	-	21	8.6

Year Two tenth-grade students performed at approximately the same level in reading as the Year One tenth-graders, but showed better performance in mathematics. Year Two eleventh-grade students performed substantially better in mathematics than Year One students, but identically in reading. Mathematics performance was also higher for the Year Two twelfth-graders than for those in the Year One sample.

c. Pilot Elementary Sample

Table IV-7 presents the pretest achievement scores for the Pilot sample. The Year Two percentile rank scores ranged from the low teens to the middle twenties, and were generally lower in math than in reading. Third-grade students performed better than the other grades in reading. In general, the Year Two students had lower percentile ranks than the Year One students, with the exception of those in the fourth grade.

TABLE IV-7. PILOT ELEMENTARY SAMPLE:
PRETEST LEVELS ON CALIFORNIA ACHIEVEMENT TEST

Year	Grade Level	Reading		Mathematics	
		Percentile	Grade Equivalent	Percentile	Grade Equivalent
Year Two	3	25	2.3	13	2.0
	4	16	2.5	16	2.9
	5	17	3.1	13	3.5
Year One	3	20	2.1	14	2.1
	4	16	2.5	14	2.8
	5	19	3.3	17	3.8

d. Racial/Ethnic Differences in Initial Achievement Level

Table IV-8 shows the percentile ranks and grade equivalents for the mean pretest total reading and total math scores by racial/ethnic group within each of the evaluation samples. No data are shown for American Indian or Asian American students, as the sample sizes for those groups were too small to produce meaningfully comparable averages.

Noticeable differences in pretest achievement levels occurred among the different racial/ethnic groups in all samples. Blacks and Spanish-background students had relatively low achievement scores in all three instances. Blacks in the Basic Elementary sample performed at about the same level as those in the Pilot sample. Spanish and White students in the Basic Elementary sample performed better than their counterparts in the Pilot sample.

Within the different racial/ethnic groups, the sex of the students and the SES level were also related to initial achievement performance (see Appendix D for detailed data). In general, there was little evidence of interaction effects between SES level or sex and race. Females, and students of higher SES level, tended to have higher pretest scores regardless of race.

TABLE IV-8. TOTAL READING AND TOTAL MATH PRETEST SCORES BY RACIAL/ETHNIC GROUP AND GRADE LEVEL

A. Basic Elementary

Racial/ Ethnic Group	Total Reading						Total Math					
	Grade 3		Grade 4		Grade 5		Grade 3		Grade 4		Grade 5	
	Percentile	G.E.	Percentile	G.E.	Percentile	G.E.	Percentile	G.E.	Percentile	G.E.	Percentile	G.E.
Black	26	2.3	16	2.5	17	3.2	13	2.0	14	2.8	14	3.5
Spanish	33	2.4	23	2.9	19	3.3	28	2.6	23	3.2	18	3.8
White	46	2.9	47	3.9	45	4.9	31	2.6	31	3.5	28	4.2

B. Pilot Elementary

Black	25	2.3	16	2.5	14	3.0	15	2.1	16	2.9	13	3.5
Spanish	24	2.3	16	2.5	15	3.1	15	2.1	18	3.0	14	3.5
White	33	2.5	24	3.3	29	4.0	18	2.2	23	3.2	19	3.8

C. Basic Secondary

	Grade 10		Grade 11		Grade 12		Grade 10		Grade 11		Grade 12	
Black	13	N.A.*	13	N.A.	14	N.A.	13	6.7	12	7.1	12	7.5
Spanish	25	N.A.	21	N.A.	40	N.A.	28	8.3	19	8.1	28	9.1
White	41	N.A.	47	N.A.	49	N.A.	43	9.5	49	10.7	48	11.3

*N.A. indicates that grade equivalents were not available from the test publishers.

In summary, it is clear from the above data for all three samples that minority students, whether in minority-isolated schools or in desegregated schools, had an acute need for programs designed to improve their basic skills in both reading and mathematics. The difference between the desegregated and minority-isolated schools was most apparent for non-minority students; non-minority students in minority-isolated schools (i.e., Pilot sample schools) tended to be almost as academically needy as their minority peers in those schools, and substantially more needy than the non-minority students in desegregated (Basic) schools.

4. STUDENT ATTITUDES, BELIEFS, AND EXPECTATIONS

This section examines students' attitudes toward school, educational expectations, and perceptions of the racial/ethnic climate at school. Two sources of data were used: the Student Questionnaires, administered in the spring of 1975, and the School Climate Questionnaires, administered in the fall of 1974 (pretest) and the spring of 1975 (posttest).

a. Attitudes Toward School and Educational Expectations

(1) Basic Elementary Sample

As shown in Table IV-9, the Basic Elementary students felt that school was "Okay," that the rules in their school were fair, and that they "belonged" in their school. In addition, getting good grades was important to them, and they wanted to complete high school and perhaps college.

Minorities were somewhat more likely than non-minority students to report feelings that school was okay, but less likely to feel that the rules were fair or that they belonged. Also, minority students expressed higher educational goals than non-minorities.

Females were more likely than males to like school, to think the rules were fair, and to feel that they belonged. Females also emphasized good grades more and had higher educational goals than males.

Higher-SES students were less inclined to like school or to think the rules were fair than were lower-SES students, but felt more often that they belonged in their school. In addition, higher-SES students placed more emphasis on higher grades and had higher educational goals than did lower-SES students.

(2) Basic Secondary Sample

As in the Basic Elementary sample, the Basic Secondary students felt that school was okay, that the rules were fair, and that they belonged (see Table IV-10). Good grades were important to them and they expressed high educational and occupational goals.

TABLE IV-9. BASIC ELEMENTARY SAMPLE: PERCENTAGES OF STUDENTS SELECTING RESPONSES TO ITEMS ON ATTITUDES AND EDUCATIONAL EXPECTATIONS

Questionnaire Item	Cross-Sectional Sample							Longitudinal Sample						
	Total	Minority	Non-Minority	Boys	Girls	Low SES	High SES	Total	Minority	Non-Minority	Boys	Girls	Low SES	High SES
How do you feel about school?														
I like it a lot	30.4	32.1	28.3	26.1	34.8	32.3	29.3	26.9	28.2	24.9	22.4	31.5	27.4	26.6
It's okay	41.7	41.6	41.7	40.2	43.2	40.6	42.3	45.3	45.5	45.1	44.1	46.5	43.9	46.1
I don't like it	8.1	7.2	9.3	8.4	7.8	7.6	8.3	8.5	7.1	10.3	8.9	8.0	8.2	8.6
I hate it	19.8	19.1	20.7	25.3	14.2	19.5	20.1	19.3	19.3	19.8	24.6	14.0	20.4	18.8
Do you think the rules in this school are fair?														
Yes	57.7	55.0	60.6	52.6	63.0	60.3	56.2	52.5	49.9	55.4	47.2	58.0	54.5	51.4
No	42.3	45.0	39.4	47.4	37.0	39.7	43.8	47.5	50.1	44.6	52.8	42.0	45.5	48.6
Do you feel you really belong in this school?														
Yes	72.5	69.6	75.7	70.0	74.9	71.3	73.1	71.6	68.0	76.2	69.5	73.8	68.8	73.1
No	27.5	30.4	24.3	30.0	25.1	28.7	26.9	28.4	32.0	23.8	30.5	26.2	31.2	26.9
How important to you is getting good grades?														
Not important	6.1	6.7	5.5	7.9	4.4	7.1	5.6	5.6	6.1	4.9	6.7	4.3	6.3	5.2
Important	17.1	16.1	18.1	18.6	15.6	17.4	17.0	18.4	16.9	20.6	20.5	16.4	19.3	18.1
Very important	76.7	77.2	76.3	73.5	80.0	75.5	77.4	76.0	77.1	74.5	72.8	79.3	74.4	76.7
Indicate the highest grade you want to finish in school.														
Less than high school	14.3	11.9	17.1	14.7	13.8	16.9	12.8	12.6	10.7	15.2	14.0	11.2	14.8	11.4
High School	20.4	22.3	18.1	21.1	19.8	25.2	17.6	19.8	21.1	18.2	20.0	19.7	26.1	16.6
College	65.3	65.8	64.8	64.2	66.4	57.9	69.6	67.5	68.2	66.5	66.0	69.1	59.0	72.0

TABLE IV-10. BASIC SECONDARY SAMPLE: PERCENTAGES OF STUDENTS SELECTING RESPONSES TO ITEMS ON ATTITUDES AND EDUCATIONAL EXPECTATIONS

Questionnaire Item	Cross-Sectional Sample							Longitudinal Sample						
	Total	Minority	Non-Minority	Boys	Girls	Low SES	High SES	Total	Minority	Non-Minority	Boys	Girls	Low SES	High SES
How do you feel about school?														
I like it a lot	22.8	23.4	22.7	20.2	25.3	22.6	23.0	25.9	27.3	24.8	24.4	27.0	27.8	23.8
It's okay	61.6	63.7	60.1	62.7	60.6	62.3	61.1	62.1	62.9	60.8	61.3	63.0	61.3	63.4
I don't like it	10.9	9.5	11.7	11.9	9.9	10.6	11.0	8.6	7.8	9.4	9.6	7.6	7.3	9.7
I hate it	4.8	3.4	5.5	5.2	4.3	4.6	4.9	3.4	2.1	5.0	4.8	2.3	3.6	3.1
Do you think the rules in this school are fair?														
Yes	58.8	46.5	68.0	58.7	59.2	51.9	64.6	59.3	51.4	68.8	58.7	59.9	54.8	64.2
No	41.2	53.5	32.0	41.3	40.8	48.1	35.4	40.7	48.6	31.2	41.3	40.1	45.2	35.8
Do you feel you really belong in this school?														
Yes	18.0	20.7	16.2	18.7	17.3	20.0	16.4	15.9	16.7	15.5	18.6	13.7	15.8	15.9
No	82.0	79.3	83.8	81.3	82.7	80.0	83.6	84.1	83.3	84.5	81.4	86.3	84.2	84.1
How important to you is getting good grades?														
Not important	5.9	3.6	7.4	8.5	3.6	5.2	6.5	5.4	2.8	8.2	8.4	3.0	4.5	6.2
Important	46.5	38.4	52.6	48.7	44.5	42.1	50.2	45.3	37.1	54.9	45.4	45.3	39.9	51.3
Very important	47.6	58.0	40.0	42.8	51.9	52.7	43.2	49.3	60.0	36.9	46.1	51.7	55.6	42.4
Indicate the highest grade you want to finish in school.														
Less than high school	1.7	2.3	1.2	2.1	1.4	2.3	1.3	1.2	1.9	0.5	2.2	0.4	1.2	1.2
High School	26.8	27.8	26.2	27.6	26.0	32.8	21.6	23.8	22.7	25.4	24.1	23.7	27.7	19.5
Technical School	14.1	14.5	13.7	9.9	17.8	15.5	12.8	14.4	14.3	14.1	9.3	18.5	15.7	12.8
Two-Year College	11.9	12.3	11.8	10.6	13.1	11.9	11.9	11.6	12.9	10.2	8.3	14.1	12.2	10.9
Four-Year College	30.4	30.3	30.8	32.9	28.2	33.9	31.8	31.5	32.1	32.1	36.6	27.8	28.0	36.0
Graduate School	15.1	12.9	16.4	16.9	13.5	11.2	18.5	17.3	16.8	17.7	19.6	15.4	15.2	19.7

TABLE IV-10. BASIC SECONDARY SAMPLE: PERCENTAGES OF STUDENTS SELECTING RESPONSES TO ITEMS ON ATTITUDES AND EDUCATIONAL EXPECTATIONS (CONT.)

Questionnaire Item	Cross-Sectional Sample							Longitudinal Sample						
	Total	Minority	Non-Minority	Boys	Girls	Low SES	High SES	Total	Minority	Non-Minority	Boys	Girls	Low SES	High SES
What occupation do you think you will have?														
Housewife	7.2	6.9	8.1	0.6	12.9	8.3	6.3	7.3	5.6	9.9	0.5	12.1	7.4	7.2
Service/Operation/Laborer	17.1	20.2	14.6	23.8	11.3	20.7	14.2	14.7	18.2	10.5	21.4	9.9	18.2	11.1
Clerical/Sales/Technical	35.1	37.8	33.7	32.7	37.3	39.0	31.9	36.0	37.2	35.0	30.9	39.8	38.8	32.8
Professional/Managerial	40.6	36.1	43.6	42.9	38.4	32.0	47.6	42.0	39.1	44.6	47.2	38.2	35.5	49.0
What occupation would you like to have?														
Housewife	2.6	1.9	3.0	0.4	4.5	3.3	0.0	2.7	2.0	3.6	0.7	4.4	2.4	3.0
Service/Operations/Laborer	11.4	13.5	9.7	15.0	8.2	13.9	9.2	10.7	12.9	8.4	15.9	6.7	13.9	7.2
Clerical/Sales/Technical	32.9	39.6	28.3	31.5	34.1	37.3	29.1	32.0	35.3	28.1	27.5	35.4	33.9	30.1
Professional/Managerial	53.1	45.0	58.9	53.1	53.3	45.6	59.6	54.5	49.7	60.0	56.0	53.5	49.8	59.7

Minority students were more likely than non-minority students to like school and to feel that they belonged, but less likely to think that the rules were fair. Minority students placed more emphasis on good grades than did non-minority students, but had lower educational and occupational goals and showed less discrepancy between their "real" and "ideal" occupational goals.

Females were more likely to think that school was okay and placed greater emphasis on good grades than males, but had lower educational goals. The "ideal" occupational goals for males and females were quite similar, but the "real" occupational goals were lower for females than for males, thus leading to a greater discrepancy between "real" and "ideal" occupations for females.

Higher-SES students were more likely to think that school rules were fair, but less likely to feel that they "belonged," than were lower-SES students. Higher-SES students also placed less emphasis on good grades, but had higher educational and occupational goals and less discrepancy between their "real" and "ideal" occupations.

(3) Pilot Elementary Samples

Results presented in Table IV-11 indicate that the Pilot sample was very similar to the Basic Elementary sample in its attitudes, with one exception. Whereas in the Basic Elementary sample, non-minorities, females, and higher-SES students were more likely to feel that they belonged in their school, in the Pilot sample, minorities, males, and lower-SES students were more likely to feel that they belonged.

b. Perceptions of School Climate

The School Climate Questionnaires (SCQs) were developed during the spring of 1974 to measure perceived discrimination in the ESAA sample schools. A discussion of the development and psychometric properties of the questionnaires will be presented in a separate document.

At the elementary level, two multiple-item scales were developed: Teacher-Student Interaction, and Treatment by Principal. At the secondary level, six scales were developed: Teacher-Student Interaction, Treatment by Administrators I (principals and vice-principals), Treatment by Administrators II (counselors), Perceived School Discrimination, Student Intergroup Relations, and Index of Alienation. The Teacher-Student Interaction scales at both levels measure the students' perceptions of how well their teachers treat them. The Treatment by Principal scale at the elementary level and the two Treatment by Administrators scales at the secondary level measure students' perceptions of how they are treated by these administrators. Perceived School Discrimination focuses on whether the students think their school is fair toward students of different racial/ethnic groups, and the Student Intergroup Relations scale provides a measure of the degree to which students of various racial/ethnic groups interact in school. The last scale, Index of Alienation, measures the students' feelings of alienation from school and from their peers.

TABLE IV-11. PILOT ELEMENTARY SAMPLE: PERCENTAGES OF STUDENTS SELECTING RESPONSES TO ITEMS ON ATTITUDES AND EDUCATIONAL EXPECTATIONS

Questionnaire Item	Cross-Sectional Sample							Longitudinal Sample						
	Total	Minority	Non-Minority	Boys	Girls	Low SES	High SES	Total	Minority	Non-Minority	Boys	Girls	Low SES	High SES
How do you feel about school?														
I like it a lot	32.3	33.8	27.4	28.7	36.0	35.2	29.1	27.9	29.8	15.5	24.3	31.9	29.7	26.2
It's okay	39.8	39.5	39.9	38.4	41.1	39.5	39.9	42.6	41.9	45.8	40.9	44.5	44.5	40.7
I don't like it	7.6	7.0	8.4	8.2	6.9	8.0	7.1	7.3	7.0	10.3	7.7	6.8	6.5	8.0
I hate it	20.4	19.7	24.3	24.6	16.0	17.2	23.8	22.2	21.3	28.4	27.1	16.9	19.2	25.1
Do you think the rules in this school are fair?														
Yes	53.3	52.4	57.3	49.7	57.3	57.3	49.2	47.9	47.5	49.4	42.6	43.6	51.5	55.0
No	46.7	47.6	42.7	50.3	42.7	42.7	50.8	52.1	52.5	50.6	57.4	46.4	48.5	55.4
Do you feel you really belong in this school?														
Yes	65.8	66.9	59.9	63.1	68.6	68.7	62.7	66.1	67.6	57.4	61.9	70.7	68.3	63.9
No	34.2	33.1	40.1	36.9	31.4	31.3	37.3	33.9	32.4	42.6	38.1	29.3	31.7	36.1
How important to you is getting good grades?														
Not important	7.1	7.2	6.6	9.1	4.9	7.6	6.5	6.1	6.3	4.5	7.7	4.4	6.2	6.1
Important	15.5	15.6	14.6	17.9	12.9	15.5	15.5	15.1	15.0	15.5	17.6	12.3	15.8	14.4
Very important	77.4	77.2	79.3	73.0	82.2	76.9	78.0	78.8	78.7	80.0	74.7	83.3	78.0	79.5
Indicate the highest grade you want to finish in school.														
Less than high school	11.8	10.6	18.0	13.5	10.1	12.7	10.7	9.8	9.1	16.1	11.3	8.2	11.3	8.4
High School	24.4	24.6	23.2	24.6	24.3	29.3	19.4	25.3	24.6	31.0	25.2	25.4	31.3	19.9
College	63.8	64.8	58.8	61.9	65.7	58.0	69.9	64.9	66.3	52.9	63.5	66.4	57.4	71.7

The range of possible scores for all scales was 0 to 100. Since there is no natural anchor point for these scales, it is difficult to determine what score level should be considered high or low in an absolute sense. Only relative statements can be made. Further, it is important to realize that the scores indicate the quality of the school environment and should be interpreted as characterizing the school rather than the student. Finally, it is not appropriate to compare scores across scales, because of the lack of anchoring.

(1) Basic Elementary Sample

The mean pretest score for the Teacher-Student Interaction scale was 69.3 for Basic Elementary students (Table IV-12), while that for the Treatment by Principal scale was 84.4. The results indicate that non-minority students perceive themselves as being treated more favorably by their principals than do minority students. It cannot be concluded that these discrepancies represent actual differences in the principals' actions, since the scale is designed to measure student perceptions. However, the validation analysis of the SCQ (discussed in Appendix B) did indicate a strong correlation (0.80, $p < .05$, two-tailed) between the Treatment by Principal scale and a measure of emphasis by principals on interracial goals, derived from interviews with principals for the In-Depth Study.

(2) Basic Secondary Sample

Table IV-12 presents the mean pretest scores on the six secondary scales for the Basic Secondary sample. On all six scales the means are fairly high, but some differences are apparent between minority students and non-minority students. Minority students had a higher average score than non-minorities on the Teacher-Student Interaction scale and on the Student Intergroup Relations scale. This indicates that minorities perceived their teachers' interactions with them as favorable more often than non-minority students did, and that minority students reported more interaction with peers of a different racial/ethnic group than non-minorities. On the other hand, minorities rated the school climate lower than non-minorities on the Treatment by Administrators I scale, the Perceived School Discrimination scale, and the Index of Alienation scale. The first of these differences is similar to the results for the Basic Elementary sample; minorities saw themselves as being treated less favorably by their principals and vice-principals than non-minority students saw themselves as being treated. The other two results indicate that minority students perceived more school discrimination than did non-minority students, and that minority students felt more alienated from school and their peers than did non-minorities. Again, it should be emphasized that the SCQ scales were designed to measure students' perceptions of school climate rather than the school climate itself.

(3) Pilot Elementary Sample

Results for the Pilot sample were very similar to those for the Basic Elementary sample (Table IV-12). The mean score for Teacher-Student Interaction was 69.4. There was little difference between minority and non-minority students on the TSI scale. On the Treatment by Principal scale, the mean for minority students was 81.2, while non-minority students averaged 86.74, indicating that non-minority students viewed their treatment by the principal somewhat more favorably than did minority students.

TABLE IV-12. MEAN SCQ SCALE SCORES FOR EACH EVALUATION SAMPLE

SCQ Scale		Basic Elementary Sample					
		Cross-Sectional			Longitudinal		
		Total	Minority	Non-Minority	Total	Minority	Non-Minority
TSI	$\overline{X}$	69.34	69.34	69.45	69.26	69.04	69.56
	S.D.	11.72	12.11	11.41	11.49	11.76	11.39
TP	$\overline{X}$	84.45	82.41	86.60	83.48	81.31	86.25
	S.D.	17.87	19.04	1b.30	18.51	19.51	16.94
		Basic Secondary Sample					
TSI	$\overline{X}$	75.36	76.18	74.99	77.61	77.86	77.27
	S.D.	12.13	12.90	11.92	12.99	13.81	12.16
AD1	$\overline{X}$	77.95	77.44	78.64	81.22	79.53	83.52
	S.D.	16.25	17.35	16.00	16.82	17.63	15.67
AD2	$\overline{X}$	84.31	83.40	84.16	85.44	85.92	85.28
	S.D.	16.88	17.49	16.74	17.03	17.47	16.74
PSD	$\overline{X}$	86.66	79.95	90.92	88.18	83.63	92.42
	S.D.	16.57	18.06	14.10	14.40	16.51	10.79
SIR	$\overline{X}$	72.12	75.45	69.69	72.07	77.01	66.53
	S.D.	14.43	13.67	14.49	14.60	13.53	13.70
IAL	$\overline{X}$	83.95	82.57	84.93	85.28	84.06	86.75
	S.D.	9.72	9.78	9.68	9.60	9.66	9.20
		Pilot Elementary Sample					
TSI	$\overline{X}$	69.40	69.55	68.12	69.42	69.35	66.42
	S.D.	12.10	12.19	11.76	12.25	12.22	13.10
TP	$\overline{X}$	81.46	81.20	86.74	81.36	81.30	85.20
	S.D.	18.79	18.93	16.88	19.15	19.15	17.92

c. Treatment-Control Comparison of Student and Family Characteristics

As mentioned early in this chapter, the student and family characteristics data were aggregated to the school level for the purpose of making treatment-control comparisons. The aggregation was appropriate because the definition of the two conditions was meaningful only at the school level. Paired t-tests were performed on the initial achievement test levels, the initial SCQ measures, the two SES measures, parents' education and occupation, percentages of minority and non-minority students, sex of students, and family composition.

(1) Basic Elementary Sample

The results for the Basic Elementary sample are reported in Table IV-13. It is apparent that the mean values for the treatment and control groups with respect to the different characteristics were similar. In fact, none of the differences reached the .05 level of statistical significance. Since achievement test gain is a primary outcome measure for the evaluation, it is particularly important that no significant differences existed between the two groups at any grade level in terms of initial achievement test performance.

TABLE IV-13. SCHOOL-LEVEL TREATMENT-CONTROL COMPARISONS FOR THE BASIC ELEMENTARY SAMPLE

Variable		Grade 3		Grade 4		Grade 5	
		Treatment	Control	Treatment	Control	Treatment	Control
Reading Achievement Total Raw Score	$\overline{X}$	49.04	48.64	27.73	29.52	35.03	35.45
	S.D.	10.95	10.67	6.31	7.96	8.30	9.39
	N	32	32	33	33	32	32
Math Achievement Total Raw Score	$\overline{X}$	56.92	55.68	26.79	27.27	35.16	34.74
	S.D.	8.18	9.66	4.26	6.88	6.02	7.05
	N	32	32	33	33	32	32
Teacher-Student Interaction	$\overline{X}$	69.74	70.09	69.35	69.38	67.69	69.10
	S.D.	4.21	2.97	2.95	4.14	3.00	3.40
	N	28	28	29	29	29	29
Treatment by Principal	$\overline{X}$	85.69	86.81	83.10	85.27	82.10	84.05
	S.D.	7.16	5.95	8.62	6.66	8.82	7.88
	N	28	28	29	29	29	29
SES: Reading-Related Items	$\overline{X}$	4.15	4.04	4.57	4.60	4.80	4.67
	S.D.	0.75	0.87	0.73	0.58	0.66	0.72
	N	31	31	33	33	32	32
SES: Luxury Items	$\overline{X}$	6.82	6.74	7.11	7.18	7.31	7.12
	S.D.	1.08	1.09	0.96	1.00	0.93	1.05
	N	31	31	33	33	32	32
Mother's Education	$\overline{X}$	3.00	2.95	3.00	2.93	2.90	2.92
	S.D.	0.62	0.62	0.61	0.64	0.52	0.65
	N	31	31	33	33	31	31
Father's Education	$\overline{X}$	3.09	3.06	3.17	3.05	3.01	3.01
	S.D.	0.78	0.75	0.68	0.79	0.67	0.78
	N	31	31	33	33	31	31

TABLE IV-13. SCHOOL-LEVEL TREATMENT-CONTROL COMPARISONS FOR THE BASIC ELEMENTARY SAMPLE (CONT.)

Variable		Grade 3		Grade 4		Grade 5	
		Treatment	Control	Treatment	Control	Treatment	Control
Mother's Occupation	$\bar{X}$	1.81	1.76	1.84	1.88	1.84	1.88
	S.D.	0.37	0.31	0.36	0.25	0.40	0.25
	N	31	31	33	33	32	32
Father's Occupation	$\bar{X}$	2.68	2.71	2.65	2.68	2.68	2.72
	S.D.	0.46	0.46	0.38	0.47	0.40	0.45
	N	31	31	33	33	32	32
Percent of Blacks in Sample	$\bar{X}$	44.57	41.00	46.68	41.07	48.21	42.62
	S.D.	30.52	29.97	28.20	30.81	29.83	30.66
	N	28	28	29	29	29	29
Percent of Whites in Sample	$\bar{X}$	53.50	58.38	54.71	57.54	50.37	55.30
	S.D.	25.71	25.59	25.14	24.36	25.14	22.70
	N	26	26	28	28	27	27
Percent of Females in Sample	$\bar{X}$	46.52	49.03	49.88	49.70	45.56	48.50
	S.D.	12.03	10.08	6.90	8.45	10.63	9.48
	N	31	31	33	33	32	32
Percent Living with Both Parents	$\bar{X}$	66.55	68.23	55.45	59.97	66.47	66.44
	S.D.	16.96	15.42	21.79	20.29	15.45	17.74
	N	31	31	33	33	32	32

(2) Basic Secondary Sample

The results reported in this sample (Table IV-14) are not as simple as those for the Basic Elementary sample. Statistically significant treatment-control differences emerged at all three grade levels. A statistically significant difference in initial reading achievement (two-tailed, $p < .05$) in favor of the control group was found at grade 10, while a similar result was apparent in mathematics in grade 12. A significant difference (two-tailed, $p < .05$) in initial Treatment by Principal I mean score was found for grades 10 and 12. This indicated that the treatment school students initially saw themselves as being treated more favorably by the principal than the control school students saw themselves as being treated. Also, control schools had a statistically significant (two-tailed, $p < .01$) higher percentage of White students in grades 11 and 12 than did their paired treatment schools. Overall, the results suggest that subsequent comparisons of student outcomes for treatment and control groups may tend to underestimate the relative gains of the treatment group at the secondary level.

TABLE IV-14. SCHOOL-LEVEL TREATMENT-CONTROL COMPARISONS FOR THE BASIC SECONDARY SAMPLE

Variable		Grade 10		Grade 11		Grade 12	
		Treatment	Control	Treatment	Control	Treatment	Control
Reading Achievement Total Raw Score	$\bar{X}$	129.76	133.36*	138.79	140.90	145.26	148.15
	S.D.	16.32	13.61	18.88	20.21	20.95	18.95
	N	20	20	20	20	20	20
Math Achievement Total Raw Score	$\bar{X}$	42.29	42.29	46.11	48.42	46.74	50.95*
	S.D.	12.31	10.72	12.75	12.78	13.86	11.78
	N	20	20	20	20	20	20
Teacher-Student Interaction	$\bar{X}$	73.63	73.63	74.85	74.78	78.53	77.41
	S.D.	2.98	2.83	3.13	4.05	4.89	2.84
	N	20	20	20	20	20	20
Treatment by Administrators I	$\bar{X}$	76.82	74.31*	78.12	77.00	82.54	79.30*
	S.D.	4.86	4.59	6.57	5.58	6.30	5.34
	N	20	20	20	20	20	20
Treatment by Administrators II	$\bar{X}$	81.13	79.72	85.30	83.30	87.07	87.62
	S.D.	4.15	5.71	3.93	4.09	7.07	4.80
	N	20	20	20	20	20	20
Perceived School Discrimination	$\bar{X}$	83.13	86.24	86.38	87.27	85.78	90.07
	S.D.	7.33	3.92	5.86	5.57	10.61	3.40
	N	12	12	12	12	12	12
Student Intergroup Relations	$\bar{X}$	74.15	74.72	72.76	72.60	79.62	70.23
	S.D.	3.61	5.41	3.37	4.19	3.67	6.21
	N	12	12	12	12	12	12
Index of Alienation	$\bar{X}$	82.61	82.63	83.21	83.08	84.64	85.40
	S.D.	3.64	3.21	3.66	4.20	4.28	3.58
	N	20	20	20	20	20	20
SES: Reading Related Items	$\bar{X}$	4.97	5.05	5.01	5.07	5.06	5.14
	S.D.	0.51	0.48	0.53	0.44	0.49	0.49
	N	20	20	20	20	20	20
SES: Luxury Items	$\bar{X}$	7.53	7.57	7.43	7.60	7.36	7.57
	S.D.	0.89	0.84	0.96	0.81	0.97	0.86
	N	20	20	20	20	20	20
Mother's Education	$\bar{X}$	3.00	3.03	3.05	3.14	3.01	3.07
	S.D.	0.33	0.41	0.49	0.42	0.52	0.69
	N	20	20	20	20	20	20
Father's Education	$\bar{X}$	3.12	3.14	3.14	3.20	3.02	3.14
	S.D.	0.47	0.49	0.63	0.62	0.68	0.61
	N	20	20	20	20	20	20
Mother's Occupation	$\bar{X}$	2.03	2.02	2.11	2.08	1.97	2.06
	S.D.	0.27	0.25	0.29	0.24	0.28	0.37
	N	20	20	20	20	20	20

*Indicates significance at the .05 level.

TABLE IV-14. SCHOOL-LEVEL TREATMENT-CONTROL COMPARISONS FOR THE BASIC SECONDARY SAMPLE (CONT.)

Variable		Grade 10		Grade 11		Grade 12	
		Treatment	Control	Treatment	Control	Treatment	Control
Father's Occupation	$\bar{X}$	2.84	2.97	3.00	2.95	3.04	3.01
	S.D.	0.28	0.32	0.33	0.34	0.43	0.42
	N	20	20	20	20	20	20
Percent of Blacks in Sample	$\bar{X}$	44.33	38.89	42.39	36.39*	49.19	39.31*
	S.D.	31.25	33.81	34.37	33.59	36.91	34.67
	N	18	18	18	18	18	18
Percent of Whites in Sample	$\bar{X}$	61.89	67.22	67.47	75.29*	69.81	77.25*
	S.D.	24.35	25.20	22.60	18.83	23.76	20.90
	N	18	18	17	17	16	16
Percent of Females in Sample	$\bar{X}$	49.05	51.20	52.00	51.95	52.17	56.22
	S.D.	9.21	9.61	11.11	9.78	10.42	10.63
	N	20	20	20	20	20	20
Percent Living With Both Parents	$\bar{X}$	66.85	66.40	65.00	65.70	58.15	65.55*
	S.D.	15.46	16.86	17.69	15.40	21.10	17.27
	N	20	20	20	20	20	20

*Indicates significance at the .05 level.

(3) Pilot Elementary Sample

As was the case with the Basic Elementary sample, the treatment and control schools in the Pilot sample (Table IV-15) did not differ significantly with respect to characteristics.

TABLE IV-15. SCHOOL-LEVEL TREATMENT-CONTROL COMPARISONS FOR THE PILOT ELEMENTARY SAMPLE

Variable		Grade 3		Grade 4		Grade 5	
		Treatment	Control	Treatment	Control	Treatment	Control
Reading Achievement Total Raw Score	$\bar{X}$	41.09	41.56	23.86	23.96	29.09	28.13
	S.D.	8.00	7.92	4.45	4.48	5.03	5.76
	N	17	17	20	20	21	21
Math Achievement Total Raw Score	$\bar{X}$	49.77	52.21	23.83	24.18	30.50	30.67
	S.D.	5.78	6.34	5.07	5.11	5.05	5.97
	N	17	17	20	20	21	21
Teacher-Student Interaction	$\bar{X}$	70.96	70.91	68.93	68.48	69.77	68.80
	S.D.	4.34	3.40	4.60	2.79	2.79	2.99
	N	16	16	20	20	20	20

TABLE IV-15. SCHOOL-LEVEL TREATMENT-CONTROL COMPARISONS FOR THE PILOT ELEMENTARY SAMPLE (CONT.)

Variable		Grade 3		Grade 4		Grade 5	
		Treatment	Control	Treatment	Control	Treatment	Control
Treatment by Principal	$\bar{X}$ S.D. N	81.50 6.27 16	85.06 6.61 16	80.06 8.05 20	82.83 5.70 20	80.36 9.17 20	81.01 8.41 20
SES: Reading-Related Items	$\bar{X}$ S.D. N	3.78 0.86 16	3.56 1.00 16	4.16 0.57 20	4.12 0.76 20	4.33 0.65 20	4.36 0.64 20
SES: Luxury Items	$\bar{X}$ S.D. N	6.12 1.18 16	6.05 1.26 16	6.39 0.82 20	6.38 0.90 20	6.46 0.91 20	6.48 0.85 20
Mother's Education	$\bar{X}$ S.D. N	2.55 0.39 15	2.58 0.52 15	2.75 0.43 18	2.70 0.45 18	2.75 0.43 19	2.69 0.47 19
Father's Education	$\bar{X}$ S.D. N	2.48 0.51 14	2.62 0.57 14	2.58 0.48 18	2.81 0.56 18	2.90 0.75 19	2.82 0.63 19
Mother's Occupation	$\bar{X}$ S.D. N	1.76 0.23 15	1.73 0.49 15	1.92 0.59 19	1.84 0.33 19	1.92 0.63 20	1.78 0.36 20
Father's Occupation	$\bar{X}$ S.D. N	2.44 0.41 15	2.42 0.36 15	2.36 0.26 18	2.49 0.37 18	2.50 0.49 20	2.56 0.41 20
Percent of Blacks in Sample	$\bar{X}$ S.D. N	76.42 27.89 12	78.67 25.97 12	79.47 25.03 15	79.93 25.17 15	79.33 28.55 15	79.67 25.54 15
Percent of Whites in Sample	$\bar{X}$ S.D. N	20.82 13.13 11	23.64 14.76 11	19.27 14.35 15	21.33 13.43 15	24.83 14.31 12	20.33 10.62 12
Percent of Females in Sample	$\bar{X}$ S.D. N	48.06 9.69 16	48.44 9.44 16	43.85 10.98 20	48.30 7.93 20	48.35 11.67 20	49.95 11.10 20
Percent Living With Both Parents	$\bar{X}$ S.D. N	57.60 17.78 15	55.93 24.00 15	49.90 18.10 20	57.45 19.40 20	61.85 18.68 20	61.70 19.28 20

D. SUMMARY OF RESULTS: FAMILY AND STUDENT CHARACTERISTICS

This chapter has described the family and student characteristics, pretest achievement scores, attitudes toward school, and school climate perceptions of students in the Basic Elementary, Basic Secondary, and Pilot samples at the beginning of the 1974-1975 school year (the second year of ESAA program implementation). Highlights of this chapter are summarized below:

- More than half of the students in all three samples lived with both of their parents, and another 15%-31% lived with one parent. More non-minority than minority students lived with both parents, and more non-minorities than minorities lived with either parent.

- Most sample students' parents were reported by teachers to have a high-school education or less. Non-minority parents, on the average, were reported to have more professional jobs, more education, and higher socioeconomic levels than minority parents. Lower socioeconomic status was reported for parents of Pilot sample students than for parents of Basic sample students.

- Slightly more than half the students in the Basic Elementary sample were White, and another two-fifths were Black. A somewhat higher percentage (around 59%) of the Basic Secondary sample students were White, and again, about 40% were Black. As expected, the Pilot sample was most heavily minority-concentrated, with Blacks constituting two-thirds of the sample and Whites only 14%. There were very small percentages of Spanish-background students in any sample except the Pilot Elementary sample, where they constituted over 15%.

- Pretest achievement scores of students in all three samples were low, with percentile ranks typically running in the teens to the low thirties. Pilot sample students had somewhat lower scores than Basic sample students, and Blacks and Spanish-background students had lower pretest scores than Whites in all three samples. There was little evidence of interaction effects between socioeconomic level or sex and race. Females, and students of higher socioeconomic level, tended to have higher pretest scores regardless of race.

- Achievement test scores for minority students in desegregated schools did not differ greatly from those of minority students in minority-isolated schools; for both groups, the data indicated an acute need for programs designed to improve their basic skills in reading and mathematics. By contrast, performance of non-minority students in desegregated and minority-isolated schools differed substantially. Non-minority students in minority-isolated (Pilot) schools tended to be almost as academically needy as their minority peers in those same schools, and appreciably more needy than the non-minority students in desegregated (Basic) schools.

- Initial student perceptions of desegregation-related school climate were generally favorable. There was evidence that minority students viewed the climate in somewhat less positive terms than non-minority students; compared with non-minority students, for example, minority students in all three samples saw themselves as being treated less favorably, perceived greater discrimination, and saw themselves as being more alienated.

- No statistically significant differences in student and family characteristics existed between the treatment and control schools for the two elementary samples. The Basic Secondary results indicated that the control students had significantly higher initial reading achievement (grade 10) and higher mathematics achievement (grade 12); these differences, though not large in absolute magnitude, suggest that subsequent treatment-control comparisons of gains in test scores may tend to underestimate the relative achievement of the treatment group.

CHAPTER V

RESOURCE ALLOCATION: FUNDS

The allocation of financial resources is one of the most fundamental and important ways in which priorities are set by school administrations. In a very real sense, the size and pattern of expenditures determine the resources available for instruction and the environment within which a child may learn a particular content area. In the present evaluation, between-school comparisons of expenditures are essential for a determination of the degree to which the experimental design of the ESAA evaluation has been achieved. This design assumes that the ESAA funding received by a treatment school represents a sum over and above the amount of money available to its matched control school. Evidence as to the validity of the assumption will determine the degree to which we can expect treatment-control comparisons to be a test of the effect of ESAA funding. Within-school analyses of expenditures provide an indication of the priorities assigned to instructional resources for different learning objectives, and help in determining whether similar allocation patterns are maintained for different funding sources (e.g., ESAA, Title I, etc.).

This chapter briefly reviews the methodology employed in the analysis of budgetary and allocation information, and then summarizes results of these analyses separately for the Basic Elementary, Basic Secondary, and Pilot Elementary subsamples. For each sample, descriptive summaries and statistical comparisons of the levels and patterns of funding are reported for the paired treatment and control schools.

Additionally, the chapter examines relationships between student and school needs (as indicated by the pretest responses on the standardized achievement tests and school climate questionnaires) and the resources allocated by schools to those needs.

The decision to focus the budgetary analyses on the treatment and control schools was made for two reasons. First, a major evaluation issue, as noted above, was the extent to which the two sets of schools differed in amount and patterns of expenditures. Second, expenditure data available at the school level were considerably more interpretable and more germane to the sample schools and students than district-level data, particularly with respect to supplemental expenditures for remedial or compensatory services. The district supplemental figures, for example, represented averages across elementary and secondary levels; since these two levels often had quite different expenditure patterns, the district figures were therefore frequently not representative of either level. Furthermore, the district averages sometimes included less needy schools as well as ESAA-eligible schools or students. By contrast, supplemental expenditure data collected at the school level were specific to each sample school, and provide a relatively detailed picture of the sources and allocation patterns of those funds. With regard to regular expenditures, the school-level data often suffered the same confounding effects (due to averaging across grade levels and across schools) as did the district-level data; typically, in fact, a district reported only a single per-pupil regular expenditure figure for all schools in that district. Even here, however, there were some advantages in using the regular expenditure data collected at the school level, since for a few districts, separate data were reported for the sample schools.

A. METHODOLOGY

1. DATA COLLECTION

The primary source of information on district and school expenditures was a questionnaire completed and returned by the school district business managers. This questionnaire provided information on the amount of regular district expenditures; the amounts and sources of district supplemental funding; district average daily attendance (ADA); school enrollment; amounts and sources of school supplemental funding; and the allocation of supplemental funds to ten areas appropriate for the expenditure of ESAA funds (as defined by ESAA guidelines). Some additional financial data were also obtained from the District Superintendent and School Principal Questionnaires. The use of follow-up telephone calls made it possible to obtain at least partial fiscal information for 159 of the 163 schools (97%) and 77 of the 78 districts.

The following definitions were used for the funding analysis:

- Regular expenditures--A school makes these expenditures in the course of running its regular school program, normally supported by state and/or local funds. In most districts, the official district position, sometimes reflecting state regulations, was that regular per-pupil expenditures were constant across schools in the district. Figures given to us on that basis were accepted for purposes of the present analysis as the best available data.

- Supplemental expenditures--A school makes these expenditures when it supplies remedial or compensatory services to low-achieving or disadvantaged children. Consequently, these are costs over and above regular expenditures and are financed primarily by state or federal funds, including ESAA.

- Total expenditures--Total expenditures are the sum of regular and supplemental expenditures.

2. COMPUTATION OF PER-PUPIL EXPENDITURES

Because of the wide variability in sample school enrollments, per-pupil cost figures were used in all analyses to ensure comparability across schools. Procedures for calculating these figures are described below.

a. Regular Per-Pupil Expenditures

The school regular per-pupil expenditure was computed by taking the district regular expenditures and dividing by the ADA. Where more detailed data were not available, all schools within a district were assumed to receive the same amount of money per pupil.

b. Supplemental Per-Pupil Expenditures

Information was obtained on the funding level and on the number of participants in each compensatory program, but not on the extent of overlap among students served by the different funds. In the absence of funding data specific to the sample students, it was decided, as in the Year One Report, to use the total school enrollments as the divisor to obtain per-pupil estimates. This approach appears as valid as any other method available, since analyses using expenditure data were conducted at the school level, and since the sample schools typically had larger proportions of students in compensatory programs. In particular, the division of total supplemental funds by total school enrollment appears reasonable for programs such as Title I and certain special state funds, since the sample schools usually listed the entire student body as participants in those programs. The calculation procedure will tend to underestimate per-pupil supplemental expenditures in the case of programs having smaller numbers of participants, but the degree of underestimation should be similar for the paired treatment and control schools that were used in the reported analyses. Since the paired schools were matched on socioeconomic status, prior achievement, and racial composition, it was reasonable to expect that they would have similar numbers of disadvantaged students. In short, for the analyses reported here, the actual per-pupil dollar amounts cannot be considered precise, but the relative treatment-control differences in funding should be meaningful.

c. Total Per-Pupil Expenditures

Total per-pupil expenditures were obtained by summing the regular and supplemental per-pupil expenditures.

3. STANDARDIZATION OF EXPENDITURE DATA

In examining funding allocations, it was important to obtain standardized dollar figures that were adjusted for local and regional differences in cost of living, so as to maximize comparability of data across the sample schools. A consumer price index is published by the U.S. Department of Commerce for 23 Standard Metropolitan Statistical Areas (SMSAs), but the most recent index data available were for 1974. Further, the index applied only to SMSAs and did not include all the states in the sample or the small cities in the study. Therefore, a new index was constructed by dividing a particular district's minimum teacher salary by the average minimum salary within the sample. This approach allowed for variations among cities in the same state, and was based on the single largest resource expenditure of most sample schools. (Staff salaries represent approximately three-fourths of the total supplemental expenditures in reading and math.) The price indices thus constructed ranged from .80 to 1.30. This reflected considerable variability in salaries, with beginning teachers in some districts earning more than half again as much as teachers in lower-paying districts. Adjustments based on the price indices should, therefore, have helped to reduce spurious variability in the expenditure data due to cost-of-living and other local pricing factors. All analyses reported in this chapter use standardized per-pupil expenditures.

B. RESULTS

Results of analyses conducted for the paired treatment-control schools (i.e., the schools used in the analysis of ESAA program impact) are presented in this section. The analyses describe (1) the level of ESAA supplemental, non-ESAA supplemental, regular, and total expenditures; (2) the allocation pattern of these expenditures; and (3) the extent to which variations in school expenditures were associated with variations in levels of student needs. Separate results are presented for the treatment schools and control schools within each of the three evaluation samples (Basic Elementary, Basic Secondary, and Pilot Elementary). In all cases, the results of the treatment schools are contrasted with those of the paired control schools.

1. DISTRIBUTION CHARACTERISTICS OF ESAA SUPPLEMENTAL, NON-ESAA SUPPLEMENTAL, REGULAR, AND TOTAL EXPENDITURES

a. ESAA Supplemental Expenditures

School-level ESAA supplemental funding was one of the most critical program variables for the current evaluation design, as the presence or absence of that funding constituted the one experimental variable. Two different methods are used in this section to calculate ESAA per-pupil expenditures. In one method, total school ESAA funds are divided by total enrollment, while in the other, ESAA funds are divided by the number of ESAA-participating students in the school. The first method, using total-enrollment figures, gives a school-level average expenditure that can be combined and/or compared with other expenditure categories averaged across total enrollment, e.g., per-pupil regular expenditures and per-pupil non-ESAA supplemental expenditures. The second calculation procedure--dividing funds by ESAA-participating students--gives a meaningful picture of the fiscal resources actually applied to each student selected to receive benefits from the ESAA programs.

Table V-1 shows, for each sample, the frequency distribution and mean level of per-pupil ESAA funding, based on total school enrollments. It will be noticed that these figures indicate the presence of ESAA funds in control schools. The major reason for this apparent anomaly is that, in a few cases, control schools were allowed to have ESAA programs in grade levels other than those involved in this study, e.g., grade 6. ESAA funds used in this manner were thus included in per-pupil calculations based on the entire enrollments of the control schools.

TABLE V-1. ESAA PER-PUPIL EXPENDITURES IN PAIRED TREATMENT AND CONTROL SCHOOLS, CALCULATED ON TOTAL SCHOOL ENROLLMENTS*

Expenditures	Basic Elementary Sample			
	Cross-Sectional and Longitudinal**			
	Treatment		Control	
	Frequency	Percentage	Frequency	Percentage
$ 0	0	0.0	26	76.5
$ 1-20	5	14.7	2	5.9
$ 21-40	8	23.5	1	2.9
$ 41-60	5	14.7	3	8.8
$ 61-80	6	17.6	1	2.9
$ 81-100	2	5.9	1	2.9
$101-150	5	14.7	0	0.0
$151-200	2	5.9	0	0.0
$200+	1	2.9	0	0.0
TOTAL N	34		34	
$\overline{X}$	66.21		10.50	
S.D.	50.08		22.04	

Expenditures	Basic Secondary Sample							
	Cross-Sectional				Longitudinal			
	Treatment		Control		Treatment		Control	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
$ 0	2	10.0	18	90.0	1	10.0	9	90.0
$ 1-20	7	35.0	0	0.0	2	20.0	0	0.0
$ 21-40	9	45.0	2	10.0	6	60.0	1	10.0
$ 41-60	1	5.0	0	0.0	0	0.0	0	0.0
$ 61-80	1	5.0	0	0.0	0	0.0	0	0.0
$ 81-100	0	0.0	0	0.0	0	0.0	0	0.0
$101-150	0	0.0	0	0.0	0	0.0	0	0.0
$151-200	0	0.0	0	0.0	0	0.0	0	0.0
$200+	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL N	20		20		10		10	
$\overline{X}$	22.07		2.30		24.03		2.15	
S.D.	15.74		7.80		13.85		6.73	
	Pilot Elementary Sample							
$ 0	1	5.3	12	63.2	0	0.0	8	72.7
$ 1-20	0	0.0	1	5.3	0	0.0	0	0.0
$ 21-40	1	5.3	0	0.0	0	0.0	0	0.0
$ 41-60	3	15.8	2	10.5	1	9.1	1	9.1
$ 61-80	4	21.1	1	5.3	4	36.4	1	9.1
$ 81-100	1	5.3	0	0.0	1	9.1	0	0.0
$101-150	4	21.1	0	0.0	2	18.2	0	0.0
$151-200	2	10.5	1	5.3	2	18.2	1	9.1
$200+	3	15.8	2	10.5	1	9.1	0	0.0
TOTAL N	19		19		11		11	
$\overline{X}$	124.71		54.76		108.27		23.53	
S.D.	116.35		124.15		56.97		47.85	

*Non-zero values for control schools reflect the fact that some control schools were allowed to have ESAA activities at grade levels other than 3 through 5 or 10 through 12.

**All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

Table V-2 shows the frequency distribution and mean values of ESAA expenditures per ESAA-participating student in Pilot Elementary, Basic Elementary, and Basic Secondary treatment schools. Because of the use of smaller divisors (number of students) in Table V-2, per-pupil entries in the table are consistently higher than the corresponding values in Table V-1. However, correlations between the two sets of values for treatment schools were statistically significant, with Pearsons ranging from .48 (two-tailed, <.001), in the Basic Elementary sample, to .76 (two-tailed, <.001) in the Pilot Elementary sample.

The remaining paragraphs of this section (i.e., Section A, ESAA Supplemental Expenditures) discuss ESAA per-pupil expenditures based on total enrollments and based on ESAA-participating students. However, all subsequent sections of this chapter deal only with per-pupil figures based on total school enrollments, as these figures provide the greatest comparability across different categories of school expenditures.

(1) Basic Elementary Sample

Calculated over total school enrollments (see Table V-1), ESAA per-pupil expenditures in treatment schools averaged around $66. For ESAA-participating students (Table V-2), the corresponding mean expenditure was about $191 per pupil. There was considerable inter-school variability in both of those figures. No distinction is shown between cross-sectional and longitudinal samples, as those two samples were identical for the Basic Elementary schools.

(2) Basic Secondary Sample

Per-pupil ESAA funding in secondary schools was considerably lower than that in the Basic Elementary schools, as shown in both Tables V-1 and V-2. Calculated across all enrolled students, the mean ESAA per-pupil expenditure in cross-sectional sample treatment schools was $22, while the corresponding figure calculated for ESAA-participating students was $139.

Table V-2 shows that longitudinal sample schools on the average had higher ESAA expenditure per ESAA-participating student than the cross-sectional sample schools ($184 compared with $139). Since there was no such difference when per-pupil figures were calculated across total enrollments (Table V-1), it may be inferred that schools newly added to the sample in Year Two probably spread their ESAA funds over larger numbers of ESAA-participating students than did schools continuing in the sample from Year One.

(3) Pilot Elementary Sample

In Pilot Elementary sample schools, ESAA per-pupil expenditures calculated over total enrollments were higher than those in either of the Basic samples. The average Pilot treatment-school expenditure in the cross-sectional sample was almost $125 per pupil, or approximately double the corresponding figure

TABLE V-2. ESAA EXPENDITURES PER ESAA-PARTICIPATING STUDENT IN TREATMENT SCHOOLS

Expenditures	Basic Elementary	
	Cross-Sectional and Longitudinal*	
	Frequency	Percentage
$ 0-50	8	23.5
$ 51-100	8	23.5
$101-150	2	5.9
$151-200	3	8.8
$201-250	6	17.6
$251-300	1	2.9
$301-400	0	0.0
$401-500	3	8.8
$500+	3	8.8
TOTAL N	34	
$\overline{X}$	190.90	
S.D.	208.21	

Expenditures	Basic Secondary			
	Cross-Sectional		Longitudinal	
	Frequency	Percentage	Frequency	Percentage
$ 0-50	7	35.0	3	30.0
$ 51-100	7	35.0	4	40.0
$101-150	0	0.0	0	0.0
$151-200	2	10.0	0	0.0
$201-250	0	0.0	0	0.0
$251-300	1	5.0	1	10.0
$301-400	1	5.0	0	0.0
$401-500	0	0.0	0	0.0
$500+	2	10.0	2	20.0
TOTAL N	20		10	
$\overline{X}$	139.16		183.63	
S.D.	191.15		250.26	
	Pilot Elementary			
$ 0-50	3	15.8	1	9.1
$ 51-100	3	15.8	3	27.3
$101-150	1	5.3	1	9.1
$151-200	2	10.5	0	0.0
$201-250	2	10.5	1	9.1
$251-300	6	31.6	4	36.4
$301-400	0	0.0	0	0.0
$401-500	0	0.0	0	0.0
$500+	0	0.0	0	0.0
TOTAL N	19		11	
$\overline{X}$	212.64		174.16	
S.D.	173.09		102.11	

*All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

for the Basic Elementary sample. It should be further noted that ESAA expenditures in Pilot control schools were also quite high, averaging around $55 per pupil. Although it is presumed that these control-school expenditures were at grade levels other than those concerned in the current evaluation (as required under USOE's arrangements with the districts), this presumption could not be rigorously verified.

ESAA expenditures per ESAA-participating student (Table V-2) were also relatively high, averaging around $212 in Pilot cross-sectional sample schools. Longitudinal sample figures were somewhat lower, with an average of about $174. This latter finding suggests that newly added Year Two schools received more funds and/or concentrated their funds on smaller numbers of students than did the schools continuing from Year One.

b. Non-ESAA and Total Supplemental Expenditures

The non-ESAA supplemental expenditures reflect funding from sources other than ESAA Pilot or ESAA Basic awards. Included in this category are ESEA Title I, ESEA Title III, ESEA Title IV, special state funds, and district compensatory funds. The total supplemental expenditure was the sum of the non-ESAA and ESAA supplemental expenditures. Non-ESAA supplemental and total supplemental per-pupil expenditures were calculated across total school enrollments. As a result, expenditure figures reported in Tables V-3 through V-5 can be directly compared with those contained in Table V-1. Data are presented separately for treatment and control schools, but discussions of statistical analyses of treatment-control differences are deferred until Section d, below.

(1) Basic Elementary Sample

As shown in Table V-3, non-ESAA supplemental expenditures in both treatment and control schools were approximately $120 per pupil, while total supplemental expenditures were almost $187 per pupil in treatment schools and $133 in control schools. This treatment-control difference in total supplemental funds, of course, directly reflects the higher level of ESAA funds in the treatment schools.

(2) Basic Secondary Sample

As shown in Table V-4, treatment schools in the Basic Secondary sample (cross-sectional) received slightly more ($2 per pupil) supplemental funds from non-ESAA sources than did the paired control schools. This increment, added to the difference in ESAA expenditures, produced the average difference of $22 in total supplemental expenditures. Overall, supplemental funding for this sample was characterized by low levels of expenditures--about one-third the size of Basic Elementary expenditures--and little variability around the average values.

TABLE V-3. BASIC ELEMENTARY SAMPLE: NON-ESAA AND TOTAL SUPPLEMENTAL EXPENDITURES IN PAIRED TREATMENT AND CONTROL SCHOOLS

A. Non-ESAA Supplemental Per-Pupil Expenditures

Expenditures	Cross-Sectional and Longitudinal Sample*			
	Treatment		Control	
	Frequency	Percentage	Frequency	Percentage
Less than $50	14	41.2	10	29.2
$ 51-100	4	11.8	8	23.5
$101-150	6	17.6	4	11.8
$151-200	4	11.8	4	11.8
$201-300	3	8.8	5	14.7
$301-400	1	2.9	3	8.8
$401-500	2	5.9	0	0.0
$500+	0	0.0	0	0.0
TOTAL N	34		34	
$\overline{X}$	120.35		122.97	
S.D.	124.71		102.91	

B. Total Supplemental Per-Pupil Expenditures

Expenditures	Cross-Sectional and Longitudinal Sample			
	Treatment		Control	
	Frequency	Percentage	Frequency	Percentage
Less than $100	9	26.5	16	47.1
$101-200	14	41.2	9	26.5
$201-300	5	14.7	5	14.7
$301-400	3	8.8	4	11.8
$401-500	1	2.9	0	0.0
$501-600	0	0.0	0	0.0
$601-800	0	0.0	0	0.0
$801-1,000	0	0.0	0	0.0
$1,001-1,200	0	0.0	0	0.0
$1,200+	0	0.0	0	0.0
TOTAL N	34		34	
$\overline{X}$	186.56		133.47	
S.D.	131.43		103.11	

*All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

TABLE V-4. BASIC SECONDARY SAMPLE: NON-ESAA AND TOTAL SUPPLEMENTAL EXPENDITURES IN PAIRED TREATMENT AND CONTROL SCHOOLS

A. Non-ESAA Supplemental Per-Pupil Expenditures

Expenditures	Cross-Sectional				Longitudinal			
	Treatment		Control		Treatment		Control	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Less than $50	20	100.0	20	100.0	10	100.0	10	100.0
$ 51-100	0	0.0	0	0.0	0	0.0	0	0.0
$101-200	0	0.0	0	0.0	0	0.0	0	0.0
$201-300	0	0.0	0	0.0	0	0.0	0	0.0
$301-400	0	0.0	0	0.0	0	0.0	0	0.0
$401-500	0	0.0	0	0.0	0	0.0	0	0.0
$500+	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL N	20		20		20		20	
$\overline{X}$	12.42		10.28		21.63		14.11	
S.D.	17.78		13.34		21.13		16.56	

B. Total Supplemental Per-Pupil Expenditures

Less than $100	20	100.0	20	100.0	10	100.0	10	100.0
$ 100-200	0	0.0	0	0.0	0	0.0	0	0.0
$ 201-300	0	0.0	0	0.0	0	0.0	0	0.0
$ 301-400	0	0.0	0	0.0	0	0.0	0	0.0
$ 401-500	0	0.0	0	0.0	0	0.0	0	0.0
$ 501-600	0	0.0	0	0.0	0	0.0	0	0.0
$ 601-800	0	0.0	0	0.0	0	0.0	0	0.0
$ 801-1,000	0	0.0	0	0.0	0	0.0	0	0.0
$1,001-1,200	0	0.0	0	0.0	0	0.0	0	0.0
$1,200+	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL N	20		20		20		20	
$\overline{X}$	34.49		12.58		45.66		16.26	
S.D.	26.63		16.69		30.24		21.55	

Average per-pupil expenditures, both non-ESAA and total supplemental, were higher on the average in the longitudinal sample than in the cross-sectional sample. This finding appears to indicate that schools added to the sample in Year Two were funded at a lower level than schools continuing from the Year One sample.

(3) Pilot Elementary Sample

Table V-5 shows the supplemental expenditure data for paired treatment and control schools in the Pilot Elementary sample. Non-ESAA expenditure levels and patterns were roughly comparable to those in the Basic Elementary sample. However, the level of total supplemental funding was considerably higher than that of the Basic Elementary sample, because of differences in ESAA funding for the two samples. Non-ESAA per-pupil funding was almost identical in the paired treatment and control schools. There was a difference of almost $70 per pupil in total supplemental funding, attributable to the larger amounts of ESAA funding in treatment schools.

It can be seen that the average per-pupil figures were substantially higher for the cross-sectional sample than for the longitudinal sample, in both total supplemental and non-ESAA supplemental expenditures. The presumed explanation for this difference is that the schools added to the sample in Year Two were funded at higher levels than those continuing from Year One.

c. Regular and Total Per-Pupil Expenditures

The regular per-pupil expenditure represents the amount of money contributed by the district and spent on non-compensatory services for all students. It was calculated by dividing the total regular district expenditures by the district ADA. The school's total per-pupil expenditure was the sum of the regular per-pupil expenditure (as calculated at the district level) and the school's total supplemental per-pupil expenditure.

(1) Basic Elementary Sample

Distributions of regular and total per-pupil expenditures for the paired treatment and control schools are presented in Table V-6. In the absence of more precise and realistic data it was assumed for analytic purposes that all schools within a district had the same per-pupil regular expenditures. By definition, therefore, the paired treatment and control schools show the same level of district regular expenditures (about $1,050 per pupil).

It should be noted that, on the average, the regular expenditures accounted for almost 85% of the total per-pupil expenditures, leaving only a small portion of the total school dollars attributable to supplemental expenditures. It is also interesting to note the great variability in levels of total expenditures, with some sample schools spending three times as much per student as other schools.

TABLE V-5. PILOT ELEMENTARY SAMPLE: NON-ESAA AND TOTAL SUPPLEMENTAL EXPENDITURES IN PAIRED TREATMENT AND CONTROL SCHOOLS

A. Non-ESAA Supplemental Per-Pupil Expenditures

Expenditures	Cross-Sectional				Longitudinal			
	Treatment		Control		Treatment		Control	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Less than $50	4	21.1	6	31.6	3	27.3	4	36.4
$ 51-100	7	36.8	3	15.8	4	36.4	2	18.2
$101-200	2	10.5	4	21.1	0	0.0	2	18.2
$201-300	1	5.3	1	5.3	0	0.0	0	1.1
$301-400	0	0.0	0	0.0	0	0.0	0	0.0
$401-500	0	0.0	1	5.3	0	0.0	0	0.0
$500+	1	5.3	0	0.0	0	0.0	0	0.0
TOTAL N	19		19		11		11	
$\overline{X}$	122.19		125.80		82.51		109.23	
S.D.	133.57		95.34		49.60		66.62	

B. Total Supplemental Per-Pupil Expenditures

Less than $100	3	15.8	7	36.8	0	0.0	4	36.4
$ 100-200	9	47.4	8	42.1	8	72.7	5	45.5
$ 201-300	3	15.8	2	10.5	2	18.2	2	18.2
$ 301-400	1	5.3	1	5.3	1	9.1	0	0.0
$ 401-500	2	10.5	0	0.0	0	0.0	0	0.0
$ 501-600	0	0.0	0	0.0	0	0.0	0	0.0
$ 601-800	0	0.0	0	0.0	0	0.0	0	0.0
$ 801-1,000	0	0,0	1	5.3	0	0.0	0	0.0
$1,001-1,200	1	5.3	0	0.0	0	0.0	0	0.0
$1,200+	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL N	19		19		11		11	
$\overline{X}$	246.90		180.56		190.78		132.76	
S.D.	233.33		202.18		53.70		77.22	

TABLE V-6. BASIC ELEMENTARY SAMPLE: REGULAR AND TOTAL PER-PUPIL EXPENDITURES IN PAIRED TREATMENT AND CONTROL SCHOOLS

A. Regular Expenditures

Expenditures	Cross-Sectional and Longitudinal Sample*			
	Treatment		Control	
	Frequency	Percentage	Frequency	Percentage
Less than $500	1	2.9	1	2.9
$ 500-600	1	2.9	1	2.9
$ 601-700	2	5.9	2	5.9
$ 701-800	3	8.8	3	8.8
$ 801-900	6	17.6	6	17.6
$ 901-1,000	3	8.8	3	8.8
$1,001-1,100	5	14.7	5	14.7
$1,101-1,200	5	14.7	5	14.7
$1,201-1,400	4	11.8	4	11.8
$1,401-1,600	2	5.9	2	5.9
$1,600+	2	5.9	2	5.9
TOTAL N	34		34	
$\overline{X}$	1050.98		1050.98	
S.D.	365.45		365.45	

B. Total Expenditures

Expenditures	Cross-Sectional and Longitudinal Sample*			
	Treatment		Control	
	Frequency	Percentage	Frequency	Percentage
Less than $800	2	5.9	3	8.8
$ 800-1,000	9	26.5	9	26.5
$1,001-1,100	4	11.8	3	8.8
$1,101-1,200	1	2.9	5	14.7
$1,201-1,300	5	17.6	2	5.9
$1,301-1,400	4	11.8	4	11.8
$1,401-1,500	1	2.9	2	5.9
$1,501-1,700	2	5.9	4	11.8
$1,701-1,900	3	8.8	0	0.0
$1,901-2,100	0	0.0	0	0.0
$2,101-2,300	1	2.9	1	2.9
$2,300+	1	2.9	1	2.9
TOTAL N	34		34	
$\overline{X}$	1237.54		1184.45	
S.D.	392.65		385.53	

*All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

(2) Basic Secondary Sample

The difference between regular and total per-pupil expenditures in Basic Secondary schools, as shown in Table V-7, was very small; on the average, in fact, supplemental expenditures accounted for less than five percent of the total per-pupil expenditures. Also noteworthy is the fact that regular per-pupil expenditures in the sample secondary schools are shown as lower on the average than those of Basic Elementary schools. This finding conflicts with common experience (high schools typically have higher per-pupil expenditures), and is, at least in large measure, the result of attributing district average figures to the secondary schools; since all sample schools were in unified districts, this calculation procedure tended to underestimate the actual expenditures in the secondary schools. (In the data collection for Year Three, many parts of the cost data are being broken down by school and/or by grade level, so that expenditure figures in the Year Three Report should be more precise and realistic.)

Another apparent anomaly in Table V-7 is the fact that control schools show slightly higher regular expenditure levels than treatment schools. Although in most cases, district regular expenditure figures were applied to all schools in the districts, there were a few districts where data specific to the sample schools could be obtained. In those few cases, on the average, the control schools were reported to have higher regular per-pupil figures than the paired treatment schools.

(3) Pilot Elementary Sample

Pilot Elementary sample schools, according to the data in Table V-8, had lower regular per-pupil expenditures than schools in either of the Basic samples. This discrepancy was somewhat offset by higher supplemental expenditures in the Pilot schools. These supplemental expenditures averaged about 20% of the total per-pupil expenditures, or almost 5% higher than the corresponding percentage in the Basic Elementary sample. The difference between the treatment and control schools in total per-pupil expenditures again reflected the higher ESAA supplemental funding in the treatment schools.

d. Summary of Treatment-Control Differences

It is apparent from the results reported above that some differences in level of funding did exist between the paired treatment and control schools, and that these differences were generally attributable to differences in the levels of ESAA funding. Because of the importance of treatment-control funding differences to the evaluation design, these differences were analyzed to determine their statistical significance. A series of paired t-tests on treatment-control differences between means were performed for each type of expenditure, i.e., ESAA, non-ESAA, total supplemental, regular, and total per-pupil within each cross-sectional sample. Results are reported in the following paragraphs.

TABLE V-7. BASIC SECONDARY SAMPLE: REGULAR AND TOTAL PER-PUPIL EXPENDITURES FOR PAIRED TREATMENT AND CONTROL SCHOOLS

A. Regular Expenditures

Expenditures	Cross-Sectional				Longitudinal			
	Treatment		Control		Treatment		Control	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Less than $500	1	5.0	1	5.0	0	0.0	0	0.0
$ 500-600	0	0.0	0	0.0	0	0.0	0	0.0
$ 601-700	2	10.0	2	10.0	1	10.0	1	10.0
$ 701-800	2	10.0	2	10.0	2	20.0	2	20.0
$ 801-900	2	10.0	2	10.0	1	10.0	1	10.0
$ 901-1,000	2	10.0	2	10.0	2	20.0	2	20.0
$1,001-1,100	3	15.0	3	15.0	1	10.0	1	10.0
$1,101-1,200	5	25.0	3	15.0	1	10.0	1	10.0
$1,201-1,400	3	15.0	4	20.0	0	0.0	0	0.0
$1,401-1,600	0	0.0	1	5.0	0	0.0	0	0.0
$1,600+	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL N	20		20		10		10	
$\overline{X}$	983.24		1000.12		929.93		927.88	
S.D.	269.26		288.88		154.27		156.50	

B. Total Expenditures

Less than $800	3	15.0	4	20.0	1	10.0	2	20.0
$ 800-1,000	6	30.0	5	25.0	5	50.0	4	40.0
$1,001-1,100	3	15.0	3	15.0	3	30.0	3	30.0
$1,101-1,200	5	25.0	3	15.0	1	10.0	1	10.0
$1,201-1,300	1	5.0	2	10.0	0	0.0	0	0.0
$1,301-1,400	2	10.0	2	10.0	0	0.0	0	0.0
$1,401-1,500	0	0.0	1	5.0	0	0.0	0	0.0
$1,501-1,700	0	0.0	0	0.0	0	0.0	0	0.0
$1,701-1,900	0	0.0	0	0.0	0	0.0	0	0.0
$1,901-2,100	0	0.0	0	0.0	0	0.0	0	0.0
$2,101-2,300	0	0.0	0	0.0	0	0.0	0	0.0
$2,300+	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL N	20		20		10		10	
$\overline{X}$	1017.73		1012.70		975.59		944.14	
S.D.	256.03		283.07		144.85		148.01	

TABLE V-8. PILOT ELEMENTARY SAMPLE: REGULAR AND TOTAL PER-PUPIL EXPENDITURES FOR PAIRED TREATMENT AND CONTROL SCHOOLS

A. Regular Expenditures

Expenditures	Cross-Sectional				Longitudinal			
	Treatment		Control		Treatment		Control	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Less than $500	0	0.0	0	0.0	0	0.0	0	0.0
$ 501-600	2	10.5	2	10.5	1	9.1	1	9.1
$ 601-700	2	10.5	2	10.5	1	9.1	1	9.1
$ 701-800	4	21.1	4	21.1	3	27.3	3	27.3
$ 801-900	3	15.8	3	15.8	1	9.1	1	9.1
$ 901-1,000	2	10.5	1	5.3	1	9.1	1	9.1
$1,001-1,100	1	5.3	2	10.5	1	9.1	1	9.1
$1,101-1,200	2	10.5	2	10.5	1	9.1	1	9.1
$1,201-1,400	1	5.3	1	5.3	1	9.1	1	9.1
$1,401-1,600	1	5.3	1	5.3	1	9.1	1	9.1
$1,600+	1	5.3	1	5.3	1	9.1	1	9.1
TOTAL N	19		19		11		11	
$\overline{X}$	935.20		939.32		963.88		963.88	
S.D.	331.52		331.94		378.14		378.14	

B. Total Expenditures

Less than $800	1	5.3	1	5.3	0	0.0	0	0.0
$ 800-1,000	8	42.1	10	52.6	6	54.5	7	63.6
$1,001-1,100	1	5.3	0	0.0	0	0.0	0	0.0
$1,101-1,200	2	10.5	3	15.8	1	9.1	1	9.1
$1,201-1,300	2	10.5	0	0.0	1	9.1	0	0.0
$1,301-1,400	1	5.3	1	5.3	1	9.1	1	9.1
$1,401-1,500	2	10.5	2	10.5	1	9.1	1	9.1
$1,501-1,700	0	0.0	0	0.0	0	0.0	0	0.0
$1,701-1,900	0	0.0	0	0.0	0	0.0	0	0.0
$1,901-2,100	1	5.3	2	10.5	1	9.1	1	9.1
$2,101-2,300	1	5.3	0	0.0	0	0.0	0	0.0
$2,300+	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL N	19		19		11		11	
$\overline{X}$	1182.10		1119.88		1154.66		1096.63	
S.D.	400.56		405.17		367.19		399.62	

(1) Basic Elementary Sample

As expected, there was a statistically significant (two-tailed, $p <.001$) treatment-control difference, favoring treatment schools, in ESAA per-pupil expenditures between treatment and control schools (see Table V-1). Statistically significant differences favoring treatment schools were also found (Tables V-3 and V-6) for total supplemental (two-tailed, $p <.05$) and total per-pupil expenditures (two-tailed, $p <.05$). The difference between the two groups in non-ESAA supplemental expenditures was not significant.

While statistical tests of significance yield some insights into the treatment-control funding differences, it is also important to ask what these differences represented relative to baseline expenditure levels. Averaging across total school enrollments, for example, total per-pupil expenditures were around $50 higher in treatment schools than in control schools. This difference represented only about four percent of the total expenditures of either treatment or control schools. Another relevant issue concerns the way in which treatment and control schools allocated their fiscal resources. In particular, were there treatment-control differences in the expenditure allocations of supplemental funds for instructional services and other activities that might be expected to influence the types of outcomes examined in this study? This issue is examined in the next major section (Section 2) of this chapter.

(2) Basic Secondary Sample

As at the elementary level, a statistically significant difference (two-tailed, $p < .001$) in ESAA and total supplemental expenditures (see Tables V-1 and V-4) existed between treatment and control schools. However, no significant difference was found between the two groups of schools in non-ESAA supplemental or total per-pupil expenditures (Tables V-4 and V-7). The average treatment-control difference in total expenditures, in fact, was only about $5. It is highly questionable, therefore, whether any treatment-control differences in outcome measures should be expected for this sample.

(3) Pilot Elementary Sample

Results for this sample were very similar to those reported for the Basic Elementary schools. There were statistically significant (two-tailed, $p <.01$) treatment-control differences in ESAA and total supplemental funding (see Tables V-1 and V-5), favoring treatment schools. A similar difference, somewhat reduced in magnitude, was apparent in the total per-pupil expenditures (Table V-8). The mean difference between the paired schools in total per-pupil expenditures was about $60 (two-tailed, $p < .05$), or under six percent of total expenditures in either the treatment or control schools.

2. ALLOCATION OF SUPPLEMENTAL FUNDS

The patterns of expenditure allocations provide an important insight into the priorities of treatment and control schools. This section seeks to determine whether the treatment and control groups differed in the way they spent available funds, and whether allocation patterns were different for funds from different sources.

a. ESAA Supplemental Expenditures

This section describes the allocation of ESAA funds in treatment schools only, as ESAA expenditures in control schools are presumed to have been at grade levels not covered by this evaluation. Categories of ESAA-supported activities included in this discussion are the ten program areas designated in ESAA regulations as appropriate for ESAA expenditures. These areas are reading, math, guidance and counseling, health services, new curricula, intergroup and cultural enrichment, career education, community activities, administrative and auxiliary services, and "other costs" (fringe benefits, travel, etc.). Data presented below for each sample (see Tables V-9 through V-11) include the mean value (across schools) and standard deviation of the percentages of total ESAA funds spent by the sample schools for each of the ten activity areas. (These tables also include allocation data for non-ESAA supplemental and total supplemental funds, which are dicussed in later sections of this chapter.)

(1) Basic Elementary Sample

Table V-9 shows that, in this sample, over half of the ESAA money was spent on reading, and almost another fifth on math instruction. Of the remaining categories, only new curricula had any sizeable allocation.

(2) Basic Secondary Sample

As in the Basic Elementary sample, the largest portion of ESAA expenditures in sample secondary schools (about 60%) was for basic skills instruction, particularly reading. However, as Table V-10 indicates, the area of intergroup and cultural enrichment also received substantial ESAA support, accounting in the cross-sectional sample for about 22% of total ESAA funds; the corresponding figure for the longitudinal sample was only half this level, suggesting that newly funded secondary schools in the Year Two sample placed relatively greater emphasis on intergroup and cultural enrichment activities than schools continuing from the Year One sample. Guidance and counseling also received greater support at the secondary level than in the sample elementary schools.

(3) Pilot Elementary Sample

The results (Table V-11) for this sample were somewhat different from those of either of the other two samples, although again the major expenditures (around 60%) were in the areas of reading and mathematics. Relative to the Basic Elementary sample, greater expenditures were made by Pilot schools for new curriculum development and for intergroup and cultural enrichment programs. It can also be seen that almost 10% of the ESAA money was spent on administrative and auxiliary services; this figure is about double that of the other samples.

TABLE V-9. BASIC ELEMENTARY SAMPLE: PERCENTAGE ALLOCATIONS OF FUNDS IN PAIRED TREATMENT AND CONTROL SCHOOLS*

Group		Type of Funding	Reading	Math	Guidance and Counseling	Health Services	New Curricula	Intergroup and Cultural Enrichment	Career Education	Community Activities	Administrative and Auxiliary Services	Other Costs
TREATMENT	Cross-sectional and Longitudinal**	Total (N=34)	54.6 21.0	21.6 15.0	2.8 4.4	0.4 0.9	5.3 18.9	1.7 6.0	0.1 0.2	3.4 15.6	4.8 5.6	5.4 6.3
		Non-ESAA (N=31)	57.3 27.6	19.1 19.8	3.2 4.9	0.7 1.1	7.1 24.7	0.0 0.0	0.1 0.2	3.2 16.5	4.1 5.8	5.3 7.3
		ESAA (N=34)	57.8 24.8	18.9 19.0	2.7 7.6	0.0 0.0	4.8 18.1	3.5 14.2	0.0 0.0	1.6 4.2	3.9 5.1	6.7 11.7
CONTROL	Cross-Sectional and Longitudinal	Total (N=31)	53.8 26.2	20.2 22.9	4.1 6.8	1.2 2.2	4.9 18.9	0.8 3.0	0.1 0.2	3.5 17.9	5.4 6.7	5.8 7.8
		Non-ESAA (N=31)	55.6 29.2	19.8 23.5	3.2 5.2	1.3 2.2	5.2 19.2	0.2 1.0	0.1 0.2	3.5 17.9	4.7 7.0	6.5 11.0

*The upper figure in each cell is the mean percentage across sample schools, and the lower figure is the standard deviation of the percentages.

**All Basic Elementary schools in the Year Two cross-sectional sample were also in the longitudinal sample.

TABLE V-10. BASIC SECONDARY SAMPLE: PERCENTAGE ALLOCATIONS OF FUNDS IN PAIRED TREATMENT AND CONTROL SCHOOLS*

Group	Type of Funding	Reading	Math	Guidance and Counseling	Health Services	New Curricula	Intergroup and Cultural Enrichment	Career Education	Community Activities	Administrative and Auxiliary Services	Other Costs
TREATMENT Cross-Sectional	Total (N=18)	43.4 26.0	35.1 23.4	3.8 7.3	0.[illegible] 0.0	2.9 7.8	10.6 25.2	3.0 7.2	0.4 1.3	4.9 9.0	5.8 7.8
	Non-ESAA (N=10)	34.5 36.8	37.3 40.1	3.4 8.9	0.0 0.0	2.9 8.4	0.1 0.5	11.9 22.0	0.1 0.4	4.4 11.1	5.3 12.3
	ESAA (N=18)	41.9 31.9	17.2 20.0	5.5 13.3	0.0 0.0	2.8 9.9	22.4 42.5	0.0 0.0	0.7 0.2	4.3 7.4	5.2 7.1
CONTROL Cross-Sectional	Total (N=15)	48.9 38.4	33.6 33.8	2.7 9.1	0.4 1.5	1.9 6.9	0.1 0.3	3.9 11.8	0.7 2.5	5.8 11.9	1.9 3.3
	Non-ESAA (N=13)	42.1 41.1	38.0 39.6	3.1 9.7	0.5 1.6	2.2 7.4	0.1 0.3	4.5 12.6	0.8 2.7	6.5 12.7	2.1 3.5
TREATMENT Longitudinal	Total (N=9)	34.5 22.8	29.9 26.3	7.6 9.0	0.0 0.0	5.8 10.4	2.8 7.2	5.0 9.8	0.9 1.7	6.1 9.2	7.5 9.0
	Non-ESAA (N=6)	19.1 22,9	35.8 38.3	5.7 11.3	0.0 [illegible]0	4.9 10.8	0.2 0.6	17.8 27.5	0.2 0.5	7.4 13.9	8.8 15.3
	ESAA (N=9)	40.4 22.6	19.1 20.2	11.0 17.6	0.0 0.0	5.5 13.9	11.5 32.6	0.0 0.0	1.4 2.8	4.9 5.6	6.1 7.8
CONTROL Longitudinal	Total (N=7)	31.2 33.5	36.5 28.8	5.8 13.1	0.0 0.0	4.2 10.0	0.2 0.5	6.7 17.2	1.6 3.6	11.3 16.1	2.7 3.5
	Non-ESAA (N=6)	17.7 17.4	45.0 31.2	6.7 14.1	0.0 0.0	4.8 10.8	0.2 0.5	7.8 18.6	1.8 3.9	12.7 17.1	3.1 3.6

*The upper figure in each cell is the mean percentage across sample schools, and the lower figure is the standard deviation of the percentages.

TABLE V-11. PILOT ELEMENTARY SAMPLE: PERCENTAGE ALLOCATIONS OF FUNDS IN PAIRED TREATMENT AND CONTROL SCHOOLS*

Group		Type of Funding	Reading	Math	Guidance and Counseling	Health Services	New Curricula	Intergroup and Cultural Enrichment	Career Education	Community Activities	Administrative and Auxiliary Services	Other Costs
TREATMENT	Cross-Sectional	Total (N=19)	45.0 28.6	12.5 12.1	2.8 4.7	1.0 2.3	14.6 27.6	4.4 16.3	0.4 1.9	1.2 2.6	11.1 18.9	7.1 9.4
		Non-ESAA (N=16)	45.4 25.3	23.5 21.7	3.2 6.5	1.4 3.8	6.3 14.3	0.1 0.2	1.2 4.7	0.6 1.5	9.3 21.1	9.1 12.8
		ESAA (N=18)	54.6 32.9	8.1 15.9	2.3 5.7	0.0 0.0	13.4 28.7	4.8 18.8	0.0 0.0	1.9 5.0	9.1 9.1	5.7 6.2
CONTROL	Cross-Sectional	Total (N=19)	54.8 25.7	15.5 16.3	3.9 5.7	1.3 4.2	6.3 13.3	0.6 2.0	3.1 13.5	1.1 2.2	6.0 9.3	6.9 10.1
		Non-ESAA (N=19)	53.3 28.2	18.5 18.1	3.1 5.9	2.2 4.9	6.5 15.4	0.0 0.0	3.1 13.5	0.6 1.3	5.1 10.0	7.4 11.8
TREATMENT	Longitudinal	Total (N=11)	45.8 28.2	12.8 13.9	3.0 4.8	0.1 0.4	24.3 33.6	0.2 0.5	0.8 2.5	0.7 1.2	4.9 4.6	7.4 10.3
		Non-ESAA (N=9)	45.2 26.6	24.5 24.1	4.2 8.4	0.3 0.7	10.4 18.2	0.1 0.2	2.1 6.3	0.1 0.1	2.3 3.0	10.9 14.6
		ESAA (N=11)	55.2 31.2	10.3 19.0	1.4 3.2	0.0 0.0	20.7 35.2	0.3 0.8	0.0 0.0	1.2 2.1	6.5 8.9	4.4 5.7
CONTROL	Longitudinal	Total (N=11)	59.9 26.0	13.9 16.0	3.6 5.8	0.1 0.4	6.3 13.2	0.1 0.1	5.4 17.8	0.4 0.9	3.2 4.1	7.1 12.2
		Non-ESAA (N=11)	58.7 32.0	16.5 18.5	2.9 6.5	0.2 0.1	6.5 15.6	0.1 0.2	5.4 17.8	0.1 0.2	1.7 2.5	8.1 14.6

*The upper figure in each cell in the mean percentage across sample schools, and the lower figure is the standard deviation of the percentages.

b. Non-ESAA Supplemental and Total Supplemental Expenditures

Allocation patterns of non-ESAA and total supplemental expenditures provide a basis for comparing priorities of treatment and control schools, particularly with respect to activities having apparent direct relevance to this study's outcome measures. The following paragraphs discuss treatment-control allocation differences for each sample, and Section c, below, summarizes results of statistical comparisons of those differences. Also discussed in the present section are similarities and differences in the allocation of ESAA and non-ESAA funds to different types of program activities.

(1) Basic Elementary Sample

As shown in Table V-9, treatment schools allocated their non-ESAA and total supplemental funds in much the same pattern as the control schools. Further, there was no evidence of appreciable differences in percentage allocations of ESAA and non-ESAA funds for the ten categories of activities. It appears, therefore, that for all practical purposes, ESAA funds were treated as add-on money to the normal budgetary pattern of supplemental expenditures.

(2) Basic Secondary Sample

Somewhat greater treatment-control differences were in evidence for the Basic Secondary sample. As can be seen in Table V-10, the treatment schools reportedly allocated a smaller proportion of their total supplemental funds to reading and mathematics instruction. It should be recalled, however, that the treatment schools had higher absolute levels of expenditures than control schools; thus, percentage differences may not be indicative of actual dollar differences in funds for reading and math.

Table V-10 also shows that the treatment schools placed greater funding emphasis than control schools on Intercultural Enrichment, and that they spent more of their non-ESAA supplemental money on Career Education.

There were also differences in the proportional allocations of ESAA and non-ESAA funds. In particular, ESAA expenditures were relatively more heavily focused on reading instruction, guidance and counseling services, and intergroup and cultural enrichment programs. Non-ESAA money was more heavily concentrated on mathematics instruction and career education. It might be expected, therefore, that any impact of ESAA funds in treatment schools would appear more strongly in the areas of intercultural relations and reading than in mathematical skills.

(3) Pilot Elementary Sample

In the Pilot Elementary sample, unlike the Basic Elementary sample, there were clear differences between treatment and control schools in their allocations of both total supplemental and non-ESAA supplemental funds (see Table V-11).

Treatment schools spent smaller proportions of their total supplemental funds than control schools on reading and math instruction, and larger proportions on new curriculum development, intergroup and cultural enrichment, and administration and auxiliary services. Control schools concentrated heavily--over 70% of total supplemental funds--on reading and math instruction.

Patterns of allocation were distinctly different for ESAA and non-ESAA funds. A considerably larger allocation of ESAA funds than of non-ESAA money was made in the area of reading. ESAA funds were also invested liberally for new curriculum. Conversely, non-ESAA funds were used three times as heavily as ESAA funds for mathematics instruction.

Taken together these results suggest an important trend. Although the addition of ESAA funds to treatment schools may have spurred greater emphasis on reading instruction in those schools, there was relatively little ESAA emphasis on mathematics, compared with that of non-ESAA supplemental programs. Furthermore, despite the introduction of ESAA projects, treatment schools in the Pilot Elementary sample placed less relative funding emphasis on basic skills instruction than control schools. This finding is particularly noteworthy in view of the fact that Pilot projects, according to program regulations, had as their one overriding goal the improvement of basic skills.

c. Summary of Treatment-Control Differences in Allocations of Supplemental Funds

Treatment-control comparisons were approached in two ways. First, paired t-tests were performed on the differences in percentage allocations for the ten areas of program activity. With one minor exception ("other costs" in the Basic Secondary sample), none of these differences was statistically significant for any sample or any activity.

Next, treatment-control comparisons were made on the actual dollar expenditures for different activities. Paired t-tests were performed on the treatment-control differences in mean expenditures for each allocation category. The results of these analyses are summarized below. (Appendix E presents tables containing expenditure data on which the analyses are based.)

(1) Basic Elementary Sample

With one exception, the paired t-tests for the ten allocation categories yielded non-significant treatment-control differences related to instruction. The only significant difference, which favored treatment schools, was in "other costs" (two-tailed, $p < .001$). The lack of significant differences in expenditures for reading and math instruction, and for intergroup and cultural enrichment, seems particularly important, since those are the activities seemingly most closely related to this study's outcome measures (reading and math achievement and school climate). Considerable caution must be exercised, however, in interpreting the apparent absence of treatment-control funding differences; as noted earlier, per-pupil allocation figures used here and through the remainder of this chapter represent averages over total school enrollments. Such figures, therefore, can be regarded only as approximations of funds applied to any specific subset of students, such as the students in the evaluation samples.

(2) Basic Secondary Sample

Unlike the elementary level, statistically significant treatment-control differences were found in expenditures for reading and mathematics (two-tailed, $p < .05$). While these differences favored the treatment schools, the small magnitude of the differences ($8 more per pupil for reading and $4 for mathematics) makes their practical importance doubtful. T-tests for the remaining allocation categories did not produce statistically significant results.

(3) Pilot Elementary Sample

Paired t-tests of dollar allocations showed statistically significant differences only in activity areas that were not directly related to instruction. Specifically, the treatment schools had significantly larger expenditures in the areas of administrative and auxiliary costs (two-tailed, $p < .05$) and "other costs" (two-tailed, $p < .01$). As in the case of Basic Elementary schools, these results suggest that treatment-control differences in outcome measures for this sample would not be expected; again, however, the lack of significant differences should not be over-interpreted, since all per-pupil expenditure figures are averages over entire school enrollments.

d. Comparison of Year One and Year Two Allocation Patterns

This section examines whether there is any evidence of a difference in funding priorities between the two years of the evaluation. Year One allocation information was available for only three areas: reading, mathematics, and "other." The "other" category represented a sum of expenditures in the eight remaining categories reported above for the Year Two data.

(1) Basic Elementary Sample

According to the percentage allocation figures shown for the Year One and Year Two cross-sectional samples in Table V-12, there was little difference in allocation patterns for Basic Elementary schools across the two years. The only noticeable shift was a slightly increased (4% higher for treatment schools and 6% higher for control schools) allocation for mathematics in Year Two.

(2) Basic Secondary Sample

Table V-12 shows a greater emphasis on reading in the Year Two sample, as compared to the Year One. This trend was particularly noticeable in the control schools, where the percentage of supplemental money spent on reading increased from 20% to 49%. Percentage allocation for math instruction decreased in Year Two for treatment schools but increased for control schools. Overall, the Year Two control schools allocated almost twice as large a percentage of supplemental money to the basic skills as did the Year One control schools.

TABLE V-12. MEAN PERCENTAGE ALLOCATIONS OF SUPPLEMENTAL EXPENDITURES FOR YEAR ONE AND YEAR TWO SAMPLE SCHOOLS

Focus	Basic Elementary			
	Year One		Year Two	
	Treatment	Control	Treatment	Control
Reading	55	54	55	54
Mathematics	18	14	22	20
Other	27	32	23	26
	Basic Secondary			
Reading	37	20	43	49
Mathematics	33	27	25	34
Other	30	53	32	17
	Pilot Elementary			
Reading	58	62	45	55
Mathematics	13	15	13	16
Other	27	23	42	29

(3) Pilot Elementary Sample

There was a noticeable difference in percentage allocation of supplemental expenditures from Year One to Year Two for this sample. As seen in Table V-12, treatment schools spent a considerably larger portion of their money for "other expenditures" in Year Two, and correspondingly less in the area of reading. A similar but smaller disparity was evident in expenditures of control schools.

3. RELATIONSHIP BETWEEN FUNDING AND NEEDS IN PAIRED TREATMENT AND CONTROL SCHOOLS

An important question for policy-makers and program administrators is whether financial resources, especially supplemental funds such as those derived from Federal or state grants, were directed toward schools having students with the greatest needs. A further question of considerable relevance concerns the extent to which the fiscal allocations were focused on the particular substantive areas in which those needs were most acute. This section of the report examines relationships between the sample schools' expenditures, both regular and supplemental, and indicators of needs of the students and of the schools. For this purpose, a need is defined as a low initial (pretest) score on an achievement test or on the pretest administration of the School Climate Questionnaire (SCQ).

Two procedures were used to examine the relationships of funding variables to indices of need. First, Pearson product-moment correlations were computed between the funding variables and each indicator of need. (The actual coefficients are contained in Appendix F.) Second, because of the large number of correlations involved, and the interrelationships known or presumed to exist among funding variables, a multivariate analysis--specifically, a stepwise multiple regression--was used to examine the relationships of funding variables to indices of need. Parallel analyses were conducted for the treatment and control schools, to permit examination of treatment-control differences in those relationships, and to focus on the use of ESAA funds in the treatment schools.

It should be noted that neither of the statistical procedures used here gives any direct evidence concerning possible causal relationships. That is, there is no way of determining whether funds were directed to a particular school or activity *because* of an identified need. However, the findings can be extremely helpful in determining whether patterns of association existed; from the findings, inferences can be made about the extent to which supplemental funds were used in accordance with their intended purpose, without reference to causality.

a. Basic Elementary Sample

In both treatment and control schools of the Basic Elementary sample, initial (pretest) scores in reading and math were significantly and positively correlated (two-tailed, $p < .05$) with total per-pupil expenditures. These results were generally corroborated by the stepwise regression analyses, as both the treatment group and the control schools showed moderate predictability of pretest scores in reading and math. The multiple correlations were statistically significant and ranged from .48 to .73 (two-tailed, $p < .05$). The dominant variable in all regressions was total per-pupil expenditures, with ESAA expenditures also playing a strong role in the treatment group.

The differences in total funding, favoring schools with higher pretest scores, resulted entirely from the fact that such schools received considerably larger amounts of regular funding. *Supplemental funding, by contrast, tended to be higher in schools with lower pretest scores* (i.e., greater academic need), but these differences were not sufficiently large to offset the lower regular funds in those schools. This variable added to the significance of prediction ($p < .05$) after regular district expenditures were accounted for in all cases. In treatment schools, ESAA funds were specifically identified as being concentrated in schools of greatest academic need ($p < .05$).

Few statistically significant relationships existed between the expenditure variables and initial SCQ levels in the Basic Elementary sample. Prediction of SCQ values by stepwise regression techniques was also very poor for both treatment and control groups. The multiple correlations were statistically non-significant (two-tailed, p >.05) and accounted for less than 16% of the variance in SCQ scale score levels.

b. Basic Secondary Sample

Results for both the treatment and control groups indicate that higher total per-pupil expenditures accompanied better initial reading and mathematics performances. In other respects, however, the two groups differed substantially. The control schools had no other statistically significant relationship between expenditures and initial achievement level. The treatment schools had a number of statistically significant correlations (two-tailed, p < .05) indicating greater total supplemental expenditures and greater ESAA expenditures in schools with the greatest academic need (i.e., the lowest test scores). These findings and other relationships in the Basic Secondary sample should be interpreted with considerable caution, as they are based on a combined (treatment plus control) sample of only 20 school pairs.

The results of the multiple regression analyses supported this finding of higher supplemental expenditures but lower total expenditures in schools with lower initial achievement test scores. In the treatment schools, statistically significant prediction (two-tailed, p < .05) of initial academic achievement was obtained from total per-pupil expenditures and ESAA per-pupil expenditures. The multiple correlations ranged in size from .82 in reading to .79 in mathematics. In the control schools, only the total per-pupil expenditure produced any significant prediction, with the multiple correlations being .62 (two-tailed, p < .05) in reading and .48 (two-tailed, p < .05) in mathematics.

There were no interpretable statistically significant correlations between expenditure variables and initial SCQ level, in either treatment or control schools. The multiple regression analyses also produced non-significant results.

c. Pilot Elementary Sample

The Pilot treatment and control schools showed quite different patterns of results in the analysis of need-expenditure relationships. Treatment schools showed no significant correlations between expenditures and initial achievement level. Results for control schools showed a pattern similar to that of the Basic Elementary sample; i.e., total supplemental and non-ESAA supplemental expenditures were greater (two-tailed, p < .05) in schools with greater academic need.

Regression analysis results for the two groups were also somewhat different. In the treatment group, schools with lower initial achievement-test scores tended to have lower total ESAA expenditures but higher supplemental expenditures for reading and mathematics; multiple correlations were .72 (two-tailed, p < .05) in reading and mathematics. In the control group, low-achieving (high need) schools had lower total per-pupil expenditures but higher non-ESAA supplemental expenditures; multiple correlations for this group were .66 in reading and .46 in mathematics (two-tailed, p < .05).

The disparity between Pilot Elementary treatment and control schools continued in the relationship between expenditures and initial school climate level. In the treatment group, significantly greater ESAA and total supplemental expenditures in the area of intercultural activities occurred in schools with low initial scores on the Treatment by Principal scale (two-tailed, $p < .05$).

In the control group, by contrast, schools with initially low Treatment by Principal performance had significantly lower total supplemental and lower non-ESAA supplemental expenditures (two-tailed, $p < .05$). Thus the concentration of supplemental funds in schools of greatest need appears to have held for Pilot treatment schools but not for control schools. The regression analysis results did not provide any additional insights into the relationship of funding to SCQ level. In fact, less than 16% of the variance was accounted for by these equations.

C. SUMMARY

A number of interesting results, including several of particular relevance to the experimental analyses of treatment-control outcome differences, were found in the financial data. Considerable care must be taken in interpreting some of the findings, however, because of the lack of expenditure data specific to the sample students. All school-level expenditure data reported here are averaged across all students in the sample schools (or, in the case of certain summaries of ESAA funds, averaged across all ESAA participants in the schools). Although the calculation of per-pupil figures in this manner facilitates the comparison of different expenditure categories across schools, the resulting figures must be interpreted as general approximations rather than as precise figures for the sample students.

- Strong relationships were found in the Basic Elementary sample, and similar though less consistent relationships in the Pilot Elementary sample, between school expenditures and academic needs of students in those schools. In general, schools having the greatest academic needs (i.e., the lowest reading and math pretest scores) had the lowest regular and total per-pupil expenditures, but the highest levels of supplemental expenditures. In the case of treatment schools, ESAA expenditures showed the same trend as other supplemental funds toward concentration in schools having the greatest academic needs. Thus, although causality cannot be directly inferred from the analyses, it appears that supplemental funds, including ESAA money, were generally distributed in a fashion that helped to reduce the degree of financial deficit in schools that were both economically and academically needy.

  By contrast with academic needs, desegregation-related needs as evidenced by the entry performance on the School Climate Questionnaire showed only fragmentary relationships with school expenditures. However, in the Basic Secondary sample and the Pilot Elementary sample, there was a trend for greater expenditures, particularly supplemental funds, to be committed more heavily in schools having more acute needs in the area of school climate.

- There were statistically significant treatment-control differences in total supplemental expenditures, favoring the treatment schools, in all three evaluation samples. In almost every instance, however, these differences were small in relation to the schools' total (regular plus supplemental) expenditures. Furthermore, in both the Basic Elementary and Pilot Elementary samples, there were no significant treatment-control differences in the allocations of supplemental funds for activities having apparent relevance to the outcome measures used in this study. Specifically, no allocation differences were found for reading or math instruction, new curricula, guidance and counseling, intergroup and cultural enrichment, or community activities. While treatment schools in the Basic Secondary sample spent significantly more than control schools for reading and mathematics, the absolute size of these differences ($8 more per pupil in reading and $4 more for mathematics) makes their practical importance doubtful.

- The total per-pupil expenditure was about $1,200 for the Pilot and Basic Elementary schools and about $1,050 for the Basic Secondary sample. These figures represent approximately a 17% increase over the total per-pupil expenditures in Year One (1973-74). A similar rate of increase was apparent for the supplemental expenditures.

- The average total supplemental expenditure varied from $30 per pupil in the Basic Secondary sample to $250 for the Pilot Elementary sample. The Basic Elementary average was about $100 less than that in the Pilot sample. These results show clearly that by far the greatest proportion of the total school budget was derived from regular district sources.

- The total per-pupil ESAA expenditure in treatment schools, calculated across the entire school enrollment, was $66 for Basic Elementary schools, $22 for Basic Secondary schools, and $124 for Pilot Elementary schools. It was also found that control schools received ESAA funds, particularly in the Pilot Elementary sample; this probably resulted from the fact that certain control schools were allowed to have ESAA projects in grade levels other than those evaluated in this study.

- When ESAA Pilot or Basic expenditures were calculated only for students designated as ESAA participants, per-pupil figures were, of course, higher than those calculated across the entire school enrollments. They ranged from $140 in the Basic Secondary schools to over $200 in the Pilot Elementary sample.

- All three Year Two evaluation samples (Basic Elementary, Basic Secondary, and Pilot Elementary) allocated roughly 70% of their total supplemental expenditures for reading and math instruction, with the heavier emphasis in both elementary samples on reading. Remaining funds were distributed over eight other allocation areas, with some emphasis in both Basic samples on new curriculum activities.

  The percentage allocation pattern was similar between Year One and Year Two for the Basic Elementary sample, but some differences occurred in patterns for the Basic Secondary and Pilot samples. Specifically, the Year Two Basic Secondary sample placed greater relative emphasis on reading than the Year One sample, and Year Two Elementary sample schools placed less relative emphasis on reading.

CHAPTER VI

RESOURCE ALLOCATION: SERVICES

This chapter examines the provision of educational services to students in Pilot and Basic sample schools during the second year of ESAA program implementation. Aspects of these services discussed below include teaching philosophies and techniques; amount of instructional time provided; specific characteristics of reading, math, and intercultural programs; and the relationship of services to needs.

Data were gathered primarily by means of questionnaires administered to district and school personnel in both treatment and control schools. In many cases, no attempt was made to distinguish ESAA-funded from non-ESAA activities. This approach was taken for several reasons. First, it was important to maintain as much correspondence as possible between the questions asked in treatment and control schools, to maximize comparability of findings in those two groups. Second, early field tests of instruments had shown clearly that many teachers were unaware of what specific services were funded by ESAA, as opposed to Title I or other funding sources. Finally, it seemed probable that the important factor with respect to the students' learning environment was total services and resources, irrespective of the source of those services.

Where appropriate, treatment-control differences were tested for statistical significance at the school level using correlated t-tests. Discussions of similarities and differences between the Year One and Year Two samples are based on informal (non-statistical) comparisons of general trends.

A. ACADEMIC PROGRAM CHARACTERISTICS

This section of the chapter describes a number of characteristics of the reading and math programs in Basic and Pilot sample schools, based primarily on data from teachers, principals, and ESAA coordinators. Characteristics of both regular and remedial programs are described, to provide a picture of the students' total experience in reading and math instruction. Academic program characteristics discussed include staffing, program objectives, instructional methods, and instructional groupings. Results are presented separately for the Year Two Basic Elementary, Basic Secondary, and Pilot Elementary cross-sectional samples. Where statistically significant differences are reported in response data for different samples, those results are based on two-tailed t-tests. All such differences were significant at the .05 level unless noted otherwise.

1. STAFFING

Teachers were asked to indicate how many students, on the average, were in each of their regular and remedial classes. In addition, they were asked to rate, on a four-point scale, how frequently they were assisted by various special personnel, including aides.

a. Basic Elementary Sample

Table VI-1 presents the average number of students per class and the mean ratings of frequency of assistance by various types of personnel, for regular and remedial reading and math in the Basic Elementary sample.

TABLE VI-1. STAFFING IN THE BASIC ELEMENTARY SAMPLE*

Item	Reading		Mathematics	
	Regular	Remedial	Regular	Remedial
Number of students in class	22.2	11.6	24.9	12.1
Frequency of use of: **				
Remedial teachers	2.6	N/A	1.7	1.6
Counselors, psychologists	1.8	1.9	1.5	1.6
Paraprofessionals/aides	2.4	2.7	2.2	2.2
Parents, other volunteers	1.6	1.5	1.4	1.4
Student teachers	1.4	1.4	1.4	1.4
Media specialists	1.8	1.8	1.4	1.5
Resource teachers (music, science, etc.)	2.0	1.8	1.3	1.5
Students in school	2.0	2.1	2.0	2.1

*All cell entries represent mean values.

**Scale used: 1=Not available, 2=Rarely, 3=Occasionally, and 4=Frequently.

Reading teachers in the Basic Elementary sample reported having an average of 22 students in their regular reading classes and 12 in their remedial reading classes. Regular reading teachers used the assistance of additional personnel, particularly remedial teachers, paraprofessionals (aides), and resource teachers. Remedial teachers were assisted predominantly by aides and students.

The average regular math class had 25 students, and the average remedial math class had 12 students. Regular math teachers used special personnel significantly less frequently than did regular reading teachers.

b. Basic Secondary Sample

As shown in Table VI-2, regular reading teachers in the Basic Secondary sample reported an average class size of 24, while the average for remedial classes was 19 (difference significant at .01 level). Special personnel used most frequently were remedial teachers, counselors/psychologists, aides, and students. Regular reading teachers were assisted significantly more frequently by students than were remedial teachers, and remedial teachers had, on the average, more aides in their classes than did regular teachers. In both regular and remedial reading, paraprofessionals/aides were used significantly less often in the Basic Secondary sample than in the Basic Elementary sample.

TABLE VI-2. STAFFING IN THE BASIC SECONDARY SAMPLE*

Item	Reading		Mathematics	
	Regular	Remedial	Regular	Remedial
Number of students in class	24.2	19.1	25.0	20.2
Frequency of use of: **				
Remedial teachers	2.5	N/A	1.8	1.8
Counselors, psychologists	1.9	2.1	1.7	1.8
Paraprofessionals/aides	1.9	2.3	1.8	2.0
Parents, other volunteers	1.3	1.3	1.3	1.3
Student teachers	1.6	1.7	1.6	1.5
Media specialists	1.8	1.9	1.6	1.7
Resource teachers (music, art, science, etc.)	1.7	1.8	1.6	1.7
Students in school	1.9	2.0	2.2	2.1

*All cell entries represent mean values.

**Scale used: 1=Not available, 2=Rarely, 3=Occasionally, and 4=Frequently.

The average regular math class had 25 students; the remedial math class size was significantly larger than in the Basic Elementary sample (20 students in the Basic Secondary vs. 12 students in the Basic Elementary). Again, additional personnel were used significantly less frequently in regular math than in regular reading programs. As in the reading program, aides in regular math were used significantly less frequently in Basic Secondary schools than in Basic Elementary schools.

c. Pilot Elementary Sample

Staffing data for the Pilot Elementary sample are presented in Table VI-3. Average class sizes for the Pilot reading teachers were 24 for regular reading and 18 for remedial reading; the latter figure is significantly higher than that for remedial class size in the Basic Elementary sample. Patterns of assistance from special personnel were generally similar to those found in the

Basic samples. However, Pilot schools reported significantly more use of paraprofessionals/aides in remedial reading and math than did Basic Elementary schools.

TABLE VI-3. STAFFING IN THE PILOT ELEMENTARY SAMPLE*

Item	Reading		Mathematics	
	Regular	Remedial	Regular	Remedial
Number of students in class	23.5	17.5	26.0	16.3
Frequency of use of: **				
Remedial teachers	2.6	N/A	1.6	1.7
Counselors, psychologists	1.6	1.8	1.3	1.4
Paraprofessionals/aides	2.6	3.3	2.4	3.3
Parents, other volunteers	1.4	1.6	1.3	1.2
Student teachers	1.4	1.4	1.3	1.4
Media specialists	1.6	1.8	1.3	1.6
Resource teachers (music, art, science, etc.)	2.1	1.9	1.4	1.7
Students in school	1.9	1.8	1.9	1.9

*All cell entries represent mean values.

**Scale used: 1=Not available, 2=Rarely, 3=Occasionally, and 4=Frequently.

The average class size for regular math was 26, and for remedial math, 16. Patterns of staff utilization in the Pilot sample were in most cases similar to those in the Basic Elementary sample, with less utilization of additional personnel in math than in reading. Other than class size, there were no significant differences between regular and remedial math programs.

d. Year One-Year Two Comparisons of Staffing

Class size and utilization of special personnel appeared quite similar in Year One and Year Two. In both years, remedial class size was smaller than regular class size in both reading and math; remedial reading teachers were used more frequently than remedial math teachers; and aides played an important role in assisting the teachers.

As has been noted, in this set of comparisons and in other inter-year comparisons reported elsewhere in this chapter, cross-sectional samples are being examined. Thus, where differences are found, they may reflect sample changes rather than program shifts within the same set of schools.

2. PROGRAM GOALS AND OBJECTIVES

Principals and district-level ESAA coordinators were asked to indicate what goals were most important to them in their compensatory reading and math programs. In addition, teachers in the three samples were asked to rate, on a three-point scale, how important various objectives were to them. Table VI-4 lists the goals and shows the percentages of ESAA coordinators and principals in each sample who chose each goal for their programs. Table VI-5 presents the mean ratings for regular and remedial teachers in each sample on the program objectives.

a. Basic Elementary Sample

Most ESAA coordinators and principals in the Basic Elementary sample agreed that the most important goal of their compensatory reading programs was raising the students' reading comprehension to grade level. Also important were raising students' vocabulary to grade level and increasing students' motivation to read. Teachers of regular reading listed development of comprehension skills, and skill in using context clues, as their major teaching objectives, while remedial teachers also focused on visual discrimination and sight recognition of words. Remedial teachers placed significantly more emphasis on visual discrimination and oral reading than did regular teachers.

For ESAA coordinators, principals, and teachers, the major goals of the compensatory math programs in Basic Elementary schools were raising students' computational skills to grade level, learning math concepts, and increasing students' motivation to learn math.

b. Basic Secondary Sample

The coordinators' and principals' goals and the regular reading teachers' objectives were essentially the same for the Basic Secondary sample as for the Basic Elementary sample. Remedial teachers placed major emphasis on comprehension, use of context clues, and improvement of verbal communication. Regular reading teachers placed significantly more emphasis on punctuation and paragraph skills, study skills, and library skills than did remedial teachers, while remedial teachers placed more emphasis on oral reading. Not surprisingly, secondary teachers placed less emphasis on the more rudimentary skills (e.g., auditory and visual discrimination, phonic and structural analysis, etc.) than did their Basic Elementary counterparts.

The major math goals for the Basic Secondary sample were the same as those for the Basic Elementary sample. Regular math teachers placed significantly more emphasis than remedial teachers on learning math concepts and terminology, and less emphasis on increasing attention span.

TABLE VI-4. PERCENTAGES OF ESAA COORDINATORS AND PRINCIPALS CHOOSING GOALS FOR COMPENSATORY READING AND MATH

Goals	Basic Elementary		Basic Secondary		Pilot Elementary	
	Coordinators	Principals	Coordinators	Principals	Coordinators	Principals
Reading Goals:						
Improving punctuation and writing skills	2.9	0.0	0.0	4.8	0.0	0.0
Improving verbal communication skills	17.1	17.1	16.7	28.6	21.7	27.3
Increasing students' motivation to read	40.0	50.0	38.9	38.1	34.8	40.9
Raising students' reading vocabulary to grade level	40.0	38.2	38.9	33.3	39.1	45.5
Improving students' speed to grade level	2.9	2.9	0.0	0.0	0.0	0.0
Raising students' reading comprehension to grade level	82.9	70.6	72.2	47.6	60.9	63.6
Development of library skills	0.0	0.0	0.0	0.0	0.0	0.0
Math Goals:						
Increasing attention span	0.0	2.9	0.0	4.8	0.0	0.0
Learning math concepts	40.0	32.4	22.2	23.8	21.7	8.7
Increasing students' motivation to learn math	22.9	26.5	33.3	33.3	39.1	30.4
Learning math operations	20.0	26.5	11.1	14.3	17.4	8.7
Learning math terminology	0.0	0.0	0.0	0.0	0.0	0.0
Improving students' ability to solve word problems	2.9	2.9	5.6	0.0	13.0	17.4
Raising students' computational skills to grade level	57.1	44.1	50.0	28.6	26.1	39.1

TABLE VI-5. MEAN TEACHER RATINGS OF OBJECTIVES FOR REGULAR AND REMEDIAL READING AND MATH

Objectives	Basic Elementary		Basic Secondary		Pilot Elementary	
	Regular	Remedial	Regular	Remedial	Regular	Remedial
Reading Objectives:*						
Development of auditory discrimination	2.7	2.8	2.3	2.5	2.7	2.8
Development of visual discrimination	2.7	2.9	1.4	2.6	2.8	2.8
Improvement of motor skills	2.3	2.5	2.1	2.0	2.3	2.5
Recognition of basic sight words	2.8	2.9	2.4	2.6	2.8	2.8
Phonic analysis of words	2.8	2.8	2.3	2.4	2.8	2.8
Structural analysis of words	2.7	2.8	2.4	2.5	2.6	2.7
Development of skill in using context clues	2.8	2.8	2.7	2.8	2.8	2.7
Practice in syllabification skills	2.5	2.4	2.2	2.3	2.5	2.5
Practice in punctuation and paragraph skills	2.5	2.3	2.6	2.4	2.4	2.4
Development of comprehension skills	3.0	2.9	2.9	2.9	3.0	3.0
Improvement of comprehension rate	2.7	2.6	2.7	2.6	2.7	2.8
Practice in oral reading	2.3	2.4	2.2	2.2	2.4	2.4
Development of study skills	2.8	2.6	2.7	2.6	2.7	2.6
Development of library skills	2.3	2.0	2.3	2.1	2.3	2.2
Improvement of verbal communication	2.8	2.7	2.8	2.7	2.8	2.7
Math Objectives:*						
Learning math concepts	2.9	2.9	2.9	2.8	2.9	2.9
Increasing attention span	2.4	2.5	2.2	2.3	2.4	2.5
Learning operations	2.9	2.9	2.8	2.8	2.9	2.7
Learning terminology	2.3	2.3	2.4	2.1	2.3	2.3
Increasing motivation to learn	2.9	2.8	2.8	2.7	2.9	3.0

*Scale used: 1=Not important
2=Important
3=Very important

c. Pilot Elementary Sample

The reading and math objectives for the Pilot sample were much the same as those for the Basic Elementary sample. There were no significant differences in goals between regular and remedial reading or regular and remedial math teachers.

d. Year One-Year Two Comparisons of Program Objectives

As with the staffing variables, the variables dealing with program objectives indicated considerable consistency across the Year One and Year Two samples. In reading, comprehension skills and word techniques were emphasized in the regular elementary programs in both years, with additional emphasis on sensory-perceptual-motor skills in remedial reading. At the secondary level, emphasis has been consistently on comprehension, library, study, and communication skills in regular reading, with more emphasis on word techniques in remedial reading during both years.

In the math area, consistent emphasis was placed on concepts, operations, and student motivation across all samples in both years.

3. INSTRUCTIONAL METHODS AND MATERIALS

ESAA coordinators and school principals were asked to indicate, on a four-point scale, how much emphasis their compensatory reading and math programs placed on various instructional methods. These data are presented in Table VI-6.

In addition, teachers were asked about their major approach in teaching reading or math (see Table VI-7), the extent of their use of instructional objectives, diagnostic testing, and screening considerations (Table VI-8), and the types of teaching materials they used and created (Table VI-9).

a. Basic Elementary Sample

Both coordinators and principals in the Basic Elementary sample stated that a great deal of emphasis was placed on small-group instruction, use of diagnostic tests, and instruction tailored to the individual needs of each student (see Table VI-6). Both regular and remedial teachers reported that they emphasized the linguistic-phonetic approach to teaching reading, using practice in both oral and silent reading (Table VI-7). They also emphasized the use of learning objectives, diagnostic tests, and instruction based on diagnosis (Table VI-8). Instructional materials used included books, magazines, audiovisual materials, and teacher-created materials (Table VI-9).

Math instruction also emphasized small-group instruction, use of diagnostic tests, and instruction tailored to the needs of the individual student, according to the coordinators and principals (Table VI-6). The majority of regular math teachers (see Table VI-7) reported using a basic text approach

TABLE VI-6. COORDINATOR AND PRINCIPAL MEAN RATINGS OF EMPHASIS ON INSTRUCTIONAL METHODS*

Methods	Compensatory Reading						Compensatory Math					
	Basic Elementary		Basic Secondary		Pilot Elementary		Basic Elementary		Basic Secondary		Pilot Elementary	
	Coordinator	Principal	Coordinator	Principal	Coordinator	Principal	Coordinator	Principal	Coordinator	Principal	Coordinator	Principal
Individual teacher discretion to formulate objectives	3.5	3.6	3.5	3.2	3.1	3.6	3.4	3.6	3.1	3.0	3.1	3.7
Administrative direction in formulating objectives	3.0	2.8	3.0	2.8	2.9	2.9	2.8	2.9	3.0	2.2	2.9	3.0
Preparation of specific short-term objectives for daily activities	3.6	3.3	3.7	3.5	3.6	3.6	3.6	3.4	3.8	3.2	3.7	3.9
Instruction tailored to the needs of the individual	3.8	3.9	4.0	3.7	3.9	3.9	3.9	3.9	4.0	3.7	3.9	3.9
Use of diagnostic tests to identify weaknesses	3.8	3.8	3.7	3.5	3.8	3.8	3.8	3.9	3.9	3.3	3.9	3.7
Use of special staff to assist teachers	3.8	3.3	3.6	3.2	3.8	3.6	3.7	3.3	3.7	3.5	4.0	3.6
Use of small-group instruction	3.9	3.8	3.9	3.6	3.7	3.8	3.9	3.8	3.9	3.5	3.7	3.7
Whole class (large-group) instruction	2.1	1.6	2.1	2.1	2.0	2.2	2.2	1.6	1.7	2.6	2.1	2.4

*Scale used: 1=Not emphasized
2=Slightly emphasized
3=Moderately emphasized
4=Strongly emphasized

TABLE VI-7. PERCENTAGE OF TEACHERS USING VARIOUS APPROACHES TO TEACHING READING AND MATH

Approaches Used	Basic Elementary		Basic Secondary		Pilot Elementary	
	Regular	Remedial	Regular	Remedial	Regular	Remedial
Reading Approach:						
Individual practice in oral reading	76.6	57.6	20.2	44.7	78.2	67.5
Individual practice in silent reading	91.1	61.9	25.2	66.0	87.1	64.9
Learning word meanings	90.5	67.8	22.5	55.3	84.2	71.4
Linguistic-phonetic	78.5	71.2	18.9	41.5	74.1	64.9
Language experience	64.7	47.5	17.5	45.3	62.1	54.5
Modified alphabet	8.1	8.5	2.9	5.7	8.8	22.1
Sight method	49.0	49.6	11.2	23.2	44.2	53.2
Math Approach:						
Basic text approach	62.1	49.3	78.9	42.4	57.1	20.5
Programmed text/materials	20.8	13.3	12.5	20.7	21.1	38.5
Laboratory approach	17.1	37.3	8.6	37.0	21.8	41.0

TABLE VI-8. TEACHER REPORTS ON USE OF OBJECTIVES, DIAGNOSTIC TESTING, AND SCREENING IN READING AND MATH

Item	Reading						Mathematics					
	Basic Elementary		Basic Secondary		Pilot Elementary		Basic Elementary		Basic Secondary		Pilot Elementary	
	Regular	Remedial	Regular	Remedial	Regular	Remedial	Regular	Remedial	Regular	Remedial	Regular	Remedial
Extent to which instruction is based on objectives* (3-point scale)	2.7	2.7	2.4	2.5	2.6	2.7	2.8	2.8	2.7	2.6	2.8	2.8
Frequency of tests to measure progress on objectives* (4-point scale)	2.6	2.5	2.2	2.4	2.5	2.4	3.2	3.1	3.0	2.9	3.1	3.1
Extent of additional instruction based on diagnostic testing* (3-point scale)	2.6	2.7	2.1	2.4	2.5	2.7	2.9	2.9	2.7	2.8	2.9	3.0
Screening considerations (percentage of teachers):												
Hearing	66.1	55.1	38.3	38.9	65.3	54.5	47.7	38.7	24.9	16.8	42.0	20.0
Vision	68.8	56.8	40.4	39.5	68.8	58.4	51.3	39.6	25.4	16.8	44.5	21.8
Intelligence	64.3	61.9	46.9	54.1	56.5	55.8	57.9	46.2	42.5	43.0	44.5	36.4
Achievement	93.8	83.1	84.5	92.8	91.5	83.1	97.4	75.5	89.2	81.3	94.3	76.4
Speech	47.3	40.7	34.1	29.9	40.7	4-.6	N/A	N/A	N/A	N/A	N/A	N/A
Emotional adjustment	41.5	35.6	30.0	32.5	44.8	37.7	35.7	38.7	22.8	24.3	35.9	27.3

*All table entries represent mean values.

TABLE VI-9. FREQUENCY OF USE OF TEACHING MATERIALS, AND NUMBER OF MATERIALS CREATED BY TEACHERS*

Materials Used	Basic Elementary		Basic Secondary		Pilot Elementary	
	Regular	Remedial	Regular	Remedial	Regular	Remedial
Reading Materials:**						
Textbooks other than basic readers	3.3	3.1	3.4	3.2	3.4	3.2
Books and printed materials	3.4	3.6	3.6	3.7	3.5	3.7
Newspapers, magazines, periodicals	2.9	2.8	3.2	3.4	3.0	2.8
Teacher-prepared materials	3.6	3.6	3.6	3.6	3.6	3.7
Motion pictures/filmstrips	3.0	2.9	3.0	2.9	3.0	3.0
Slides/transparencies	2.6	2.5	2.7	2.7	2.5	2.5
Tape recordings and records	3.0	3.3	3.1	3.2	3.0	3.3
Video or TV tapes	2.2	1.9	2.2	2.2	2.1	1.9
Games, puzzles, toys	3.1	3.5	2.6	3.1	3.2	3.4
Number of materials created by teacher***	3.6	3.0	3.5	2.9	3.4	3.4
Math Materials:**						
Basic texts	3.7	3.3	3.9	3.2	3.6	2.9
Text other than basic text	2.8	3.0	3.0	2.9	2.9	2.8
Other books and printed materials	3.4	3.7	3.2	3.4	3.3	3.6
Drill and practice materials	3.8	3.9	3.5	3.7	3.7	3.9
Audiovisual materials	3.0	3.2	2.9	2.9	2.9	3.2
Number of materials created by teacher***	3.3	2.7	2.8	2.4	3.3	3.1

*All table entries represent mean values.

**Frequency-of-use scale:
1=Not available
2=Rarely used
3=Sometimes used
4=Often used

***Count of different types, possible range from 0 to 8.

to teaching math, while in the remedial program, more emphasis was placed on a laboratory approach. As Table VI-8 shows, both regular and remedial programs emphasized the use of instructional objectives and diagnostic testing, and various screening consideration were used in determining students' needs. In regular math (Table VI-9), the materials most frequently used were basic texts and drill/practice materials, while in remedial math, the most common materials were books other than basic texts, and drill/practice materials.

b. Basic Secondary Sample

The patterns of relative emphasis on different instructional approaches and materials in the Basic Secondary sample were similar to those in the Basic Elementary sample, although the secondary teachers placed somewhat less emphasis then elementary teachers on the use of instructional objectives (see Table VI-8). There was a very noticeable difference, however, in the absolute percentages of elementary and secondary teachers who reported the use of various instructional approaches for regular reading instruction (Table VI-7). All of the regular reading approaches were selected much more often by the elementary-level teachers; these elementary-secondary differences were all significant at the .05 level (two-tailed t-test). The most reasonable interpretation of these differences is that elementary-level teachers used a wide variety of approaches (with the result that each teacher checked several approaches in the questionnaire), whereas most secondary-level teachers restricted themselves to one or two approaches. In a similar vein, Table VI-8 shows that larger percentages of elementary than of secondary teachers indicated use of each of the screening criteria for determining students needs (all differences significant at .05 level); these results again suggest less variability in approach on the part of individual secondary teachers.

Remedial reading teachers placed significantly more emphasis then regular teachers on giving students additional instruction based on diagnostic testing (see Table VI-8). According to coordinators and principals (Table VI-6), the major emphasis in math was placed on small-group instruction, the use of diagnostic tests, and instruction tailored to the individual needs of the students. The amount of additional instruction based on diagnostic testing was significantly higher in remedial math than in regular math.

c. Pilot Elementary Sample

There were few differences, overall, in the teachers' use of instructional methods and materials for the Pilot Elementary and Basic Elementary samples. In regular reading, significantly smaller percentages of Pilot teachers reported use of instruction in "learning word meanings," and of intelligence tests for identifying student needs. Also, in regular math, fewer Pilot teachers used intelligence tests or indicators of emotional adjustment for identifying needs. The most interesting and interpretable Pilot-Basic differences, however, were in remedial reading and math; Pilot teachers reported significantly greater use of programmed materials in math, greater use of a modified alphabet in reading instruction, and less use of basic texts in math. Taken together, these results suggest a more innovative, less traditional approach on the part of the Pilot Elementary teachers with respect to remedial instruction. Such an approach is entirely consistent with the Pilot program's emphasis on innovative projects, as required under the grant award guidelines.

d. Year One--Year Two Comparisons of Methods and Materials

Generally, the approaches to teaching reported by teachers in both years were similar, with a few exceptions. At the elementary level, the major approach in both years for reading was linguistic-phonetic, followed by language experience. At the secondary level, however, the linguistic-phonetic approach was apparently less common in the second year than in the first year, and the sight method was reported more often for both levels in the second year than in the first year.

In regular math, second-year teachers again identified the basic text approach most frequently, particularly at the secondary level. In remedial programs in the Pilot sample, the laboratory approach was again most frequent, but in the Basic Elementary sample, some shift appears to have occurred from the laboratory approach to the basic text approach.

As in the first year, use of instructional objectives and diagnostic techniques was common in both regular and remedial reading and math, particularly at the elementary level.

Utilization of materials was also very similar for the two years, although in remedial math programs, there appears to have been an increase in the use of drill-and-practice materials in both the Basic and the Pilot samples.

4. INSTRUCTIONAL GROUPINGS

Teachers in all three samples were asked a series of items dealing with the grouping procedures used in their reading and math instruction. One item explored the various criteria used for grouping students; a second item dealt with the sizes of the groups; and the last item was concerned with the frequency of change in the composition of small groups. Data for these items are presented in Table V-10, broken down by sample and by regular vs. remedial instruction in reading and math.

a. Basic Elementary Sample

As shown in Table VI-10, the major types of groupings used for reading instruction in the Basic Elementary sample were small groups (two to ten students) and students working independently. Groups were most frequently organized by reading grade level in regular classes, and by specific skill deficiencies in remedial classes; in both cases, the composition of the groups changed rarely.

TABLE VI-10. INSTRUCTIONAL GROUPINGS USED IN READING AND MATH*

Groupings	Reading Program						Math Program					
	Basic Elementary		Basic Secondary		Pilot Elementary		Basic Elementary		Basic Secondary		Pilot Elementary	
	Regular	Remedial	Regular	Remedial	Regular	Remedial	Regular	Remedial	Regular	Remedial	Regular	Remedial
Frequency of grouping by:**												
Achievement grade level	3.7	3.4	2.6	2.9	3.6	3.5	3.4	3.1	2.7	2.6	3.3	3.2
Specific skill deficiencies	3.4	3.7	2.7	3.1	3.5	3.6	3.6	3.7	2.8	3.1	3.6	3.7
Shared interests	2.8	2.7	3.8	2.9	2.8	2.9	2.5	2.7	2.3	2.0	2.5	2.7
Specific projects	2.9	2.7	3.0	2.9	2.9	2.6	2.5	2.8	2.3	2.3	2.5	2.6
Frequency of group sizes:***												
Adult and student 1:1	2.2	2.5	2.0	2.5	2.2	2.5	2.4	2.6	2.4	2.5	2.4	2.6
Groups of 2-10 students	2.5	2.7	2.1	2.4	2.6	2.5	2.3	2.5	2.0	2.0	2.3	2.4
Groups of 11-20 students	2.0	1.4	2.0	1.9	1.9	1.6	2.0	1.6	1.9	1.7	1.9	1.6
Groups of 20+ students	1.7	1.2	2.1	1.6	1.7	1.2	2.0	1.5	2.2	1.7	1.9	1.4
Independent work	2.8	2.7	2.5	2.7	2.8	2.7	2.8	2.7	2.5	2.6	2.7	2.7
Independent teams	2.3	2.2	2.1	2.1	2.3	2.3	2.2	2.3	2.0	1.9	2.2	2.2
Frequency of change of small groups: ****												
No groups	13.1	14.6	35.8	36.1	8.7	10.8	30.8	29.5	50.6	48.9	25.9	19.0
Rarely change	50.0	44.8	29.1	24.1	52.0	52.3	29.2	25.6	28.1	31.1	21.5	23.8
Monthly	23.4	20.8	14.8	12.8	25.7	13.8	17.6	16.7	7.2	7.8	23.2	14.3
Bi-weekly	5.8	5.2	6.0	6.8	4.3	4.6	10.1	7.7	6.3	4.4	10.1	11.9
Weekly	7.7	14.6	14.3	20.3	9.3	18.5	12.4	20.5	7.8	7.8	19.2	31.0

*Table entries represent mean values

**Scale used: 1=Never 2=Rarely 3=Occasionally 4=Frequently

***Scale used: 1=Never or Rarely 2=Occasionally 3=Frequently

****Percentage of teachers giving each response

The major grouping emphasis in math was on individual students working independently; there was somewhat less emphasis on adults and students in one-to-one relationships, and on groups of two to ten students. Groups were most frequently organized by specific skill deficiencies, and remained fairly stable over time.

b. Basic Secondary Sample

As in the Basic Elementary sample, emphasis in reading was placed on small groups and on students working independently. Groups were organized in terms of specific projects and shared interests, with the composition of the groups remaining fairly stable over time. In both regular and remedial reading, grouping by reading grade level and by skill deficiencies was significantly less frequent than in the Basic Elementary sample, and small-group instruction was used significantly less often.

Grouping for instruction in math was significantly less frequent in the Basic Secondary sample than in the Basic Elementary sample; when it occurred, it was based on specific skill deficiencies, and the composition of the groups was very stable over time. Groups of more than 20 students were significantly more frequent in regular math than in remedial math. In both regular and remedial math, grouping by skill deficiencies occurred significantly less frequently for this sample than for the Basic Elementary sample.

c. Pilot Elementary Sample

Grouping procedures for both reading and math in the Pilot sample were similar to those in the Basic Elementary sample. There were no significant regular-remedial differences in these procedures.

d. Year One-Year Two Comparisons of Grouping Methods

In terms of grouping methods, remedial reading and math programs were very similar in Year One and Year Two, but regular programs in the second year used more individualized instruction. Secondary schools maintained a greater emphasis on large-group instruction, as compared with elementary schools.

5. TREATMENT-CONTROL COMPARISONS OF ACADEMIC PROGRAMS

To provide treatment-control comparisons on the variables relating to academic program components, all data were aggregated to the school level, and correlated t-tests were performed. Of the 777 t-tests performed, a total of 40, or 5.1%, were significant at the .05 level. In relation to the total number of tests, this small number of significant results could have occurred by chance alone. Further, the results that were significant were generally scattered, with no consistency across samples. Thus, this discussion focuses only on those few dimensions that showed a consistent, interpretable pattern of differences; again, each reported difference was significant at the .05 level unless otherwise stated.

The most consistent difference was in the teachers' use of special personnel in their teaching efforts. In Pilot Elementary regular reading programs, aides and resource personnel were used significantly more frequently by teachers in treatment schools than by teachers in control schools ($p < .05$); in regular math, moreover, aides, resource personnel, and media specialists were used significantly more often in the treatment schools. In the Basic Secondary sample, remedial reading teachers were assisted by parents significantly more frequently in treatment schools than in control schools. Finally, in the Basic Elementary sample, in regular math, teachers in treatment schools were assisted more frequently than control teachers by remedial personnel and counselor/psychologists.

Another interesting result concerned the use of diagnostic testing as a guide to further instruction in regular math programs in the Basic Elementary and Secondary samples. In both samples, the use of diagnostic testing for further instruction was significantly more frequent in treatment schools than in control schools.

Finally, in regular reading programs in both the Basic Elementary and Basic Secondary samples, the frequency of pupil teams working independently was significantly higher in treatment than in control schools, and in the Pilot sample, individual pupils worked independently in regular math programs significantly more often in treatment schools than in control schools.

Although the treatment-control differences reported above appear to reflect consistent trends with respect to instructional approaches in the two comparison groups, it is important to interpret these results with some reservations. As noted earlier, the overall number of significant differences was at the chance level relative to the total number of treatment-control comparisons performed. Thus a given difference may represent a measurement error or other chance variation rather than an actual program disparity reflecting ESAA funding in the treatment schools.

B. INTERCULTURAL PROGRAM CHARACTERISTICS

One of the important objectives of the ESAA Basic programs was the promotion of interracial interaction and cultural activities to facilitate the desegregation process in districts receiving program grants. This section examines the characteristics of intercultural programs in the Basic sample schools. Pilot schools are not discussed, as their program focus was, under the funding guidelines, limited to basic skills instruction.

There were several difficulties in defining the intercultural programs. One major problem was that these programs often did not include formal instructional components or materials with which students directly and regularly interacted. Rather, they often consisted of special counseling rendered on a crisis-need basis. Because of the difficulty in formulating a clearcut taxonomy of intercultural program profiles or approaches, it was decided instead to describe several dimensions along which the programs were found to vary. Descriptive analyses related to these dimensions are grouped below into three sections. The first descriptive section is concerned with guidance and counseling services that were provided by ESAA funds, and with the use of these services by sample students. The second section describes student activities formally designated as being intergroup or interracial in character. The final section discusses special training provided to school staffs in the areas of intergroup relations or intercultural programs. In all instances, the data were obtained from the Principal Questionnaire and pertain only to the treatment (ESAA-funded) schools.

1. GUIDANCE AND COUNSELING

Table V-11 presents data concerning guidance and counseling programs. In Basic Elementary and Basic Secondary schools, approximately one-fourth of the treatment (funded) schools used part of their ESAA funds to provide some form of guidance and counseling services. The most widely used forms of counseling at the elementary and secondary levels were individual counseling, group counseling, and staff training.

At the elementary level, the most frequently stated objectives of the guidance and counseling programs were improving students' self-image and helping students with their personal problems. At the secondary level, help with personal problems was emphasized most frequently, followed by help with career plans; significantly less emphasis was given to improvement of self-image than in the Basic Elementary sample. The effectiveness of the guidance and counseling programs at the elementary level was most frequently assessed by pupil performance, while at the secondary level it was most often assessed from records and reports.

2. INTERGROUP RELATIONS AND CULTURAL ENRICHMENT PROGRAMS

Approximately two-fifths of the Basic Elementary and one-fourth of the Basic Secondary treatment schools indicated that their students participated in ESAA-sponsored intergroup relations and/or cultural heritage programs (see Table VI-12). The major objectives of these programs were helping students to appreciate the contributions of different cultures and raising minority students' self-image; these goals were cited much more frequently than lowering the incidence of intergroup conflict.

The activities used by schools to meet their objectives covered a very wide variety of approaches, including cultural programs, use of multi-ethnic materials, group discussions, staff inservice workshops, student tutoring, parent meetings, and the serving of ethnic foods in the school cafeteria. No single activity stood out as being the most frequently used. Teachers' opinions, observations, staff evaluations, and student responses were the most frequently reported means for evaluating the effectiveness of these programs. Secondary schools reportedly used observations, staff evaluations, and advisory committees significantly less frequently than elementary schools.

TABLE VI-11. PERCENTAGES OF BASIC TREATMENT SCHOOLS HAVING GUIDANCE/COUNSELING PROGRAMS WITH SPECIFIED CHARACTERISTICS

Program Characteristics	Basic Elementary	Basic Secondary
Percentage of Schools Having Guidance/Counseling Programs	26	23
Program Objectives:		
Improving self-image	23.5	9.5
Helping students with career plans	5.9	14.3
Helping with personal problems	14.7	19.0
Planning academic programs	0.0	9.5
Furthering academic growth	5.9	0.0
Reducing drop-out rate	0.0	9.5
Reducing truancy	0.0	9.5
Raising students' GPA	0.0	4.8
Reducing disciplinary problems	2.9	9.5
Program Activities:		
Staff training	14.7	4.8
Increase counseling staff	2.9	0.0
Group counseling	11.8	9.5
Individual counseling	20.6	14.3
Program Evaluation:		
Questionnaires	5.9	4.8
Decrease in pupil absence	2.9	9.5
Pupil performance	17.6	9.5
Teacher opinions	11.8	9.5
Records and reports	0.0	14.3
Observations	14.7	9.5

TABLE VI-12. PERCENTAGES OF BASIC TREATMENT SCHOOLS HAVING INTERGROUP RELATIONS AND CULTURAL ENRICHMENT PROGRAMS WITH SPECIFIED CHARACTERISTICS

Program Characteristics	Basic Elementary	Basic Secondary
Percentage of Schools Having Intergroup Relations and Cultural Enrichment Programs	30	43
Program Objectives:		
Decreasing intergroup conflict	8.6	11.1
Appreciating different cultures	17.1	22.2
Reducing desegregation problems	8.6	22.2
Raising minorities' self-image	20.0	11.1
Increasing knowledge of different cultures	11.4	5.6
Increasing achievement of minorities	17.1	5.6
Program Activities:		
Cultural programs	26.5	38.1
Multi-ethnic materials	29.4	33.3
Ethnic studies units	14.7	33.3
Student exchange programs	5.9	19.0
Academic instruction	20.6	33.3
Group discussions	20.6	38.1
Staff inservice workshops	29.4	42.9
Social activities	20.6	28.6
Parent meetings	23.5	23.8
Interaction events	8.8	19.0
Student tutoring	23.5	14.3
Serving "ethnic" food	14.7	28.6
School integration	14.7	33.3
Group counseling	8.8	28.6
Program Evaluations:		
Teacher opinions	14.7	33.3
Observations	26.5	19.0
Records and reports	8.8	19.0
Staff evaluations	20.6	4.8
Student responses	11.8	28.6
Advisory Committee responses	14.7	0.0
Questionnaires	11.8	14.3

3. STAFF DEVELOPMENT ACTIVITIES

Analysis of the objectives of each school's staff development activities (see Table VI-13) suggests that such goals as "increasing teacher awareness of cultural differences" and "improving relations between teachers and students of different racial/ethnic groups" were considered far less important than goals related to instructional techniques in basic skill areas. Nevertheless, approximately one-fifth of the schools in the elementary sample indicated that "increasing teacher proficiency in teaching students of different racial and ethnic backgrounds" was an important objective of their staff development programs, and 14% to 23% of the schools indicated that guidance and intergroup programs were supported to some extent by staff development activities. "Increasing the teachers' awareness of cultural differences" received significantly more emphasis at the secondary level than at the elementary level.

TABLE VI-13. PERCENTAGES OF BASIC TREATMENT SCHOOLS HAVING STAFF DEVELOPMENT PROGRAMS OF SPECIFIED CHARACTERISTICS

Program Characteristics	Basic Elementary	Basic Secondary
Percentage of Schools Having Staff Development Programs	43	23
Program Objectives:		
Increase teacher awareness of cultural differences	5.9	14.3
Improve teaching of remedial reading or math	26.5	9.5
Improve intergroup relations between teachers and students	2.9	9.5
Encourage innovative techniques	29.4	4.8
Improve teaching of students with different racial/ethnic backgrounds	20.6	9.5
Program Activities:		
Group discussions	14.7	9.5
Inservice workshops	41.2	19.0
Seminars, lectures	20.6	14.3
Program Areas Supported:		
Reading	29.4	19.0
Math	26.5	14.3
Guidance/Counseling	14.7	14.3
Intergroup/Cultural	23.5	14.3

C. DESEGREGATION PROGRAMS

This section describes school-level desegregation plans, and communication efforts related to desegregation problems and activities, in Basic Elementary and Basic Secondary sample schools. (District-level data and analyses are presented in Chapter VII.) Pilot Elementary schools, which by definition were minority-impacted, are not included in these descriptions. There were no significant treatment-control differences for either Basic group on any of the specified variables; therefore, all schools within each evaluation group were combined for these analyses.

1. ELEMENTS OF DESEGREGATION PLANS

Four items in the Principal Questionnaire provided data related to elements of desegregation plans in Basic Elementary and Basic Secondary sample schools. It should be noted, therefore, that all desegregation data reported below represent the principals' responses rather than directly observed conditions. One item presented a list of possible administrative procedures, and asked the principals to check all procedures being used in the school to achieve desegregation. A second item inquired whether a contingency plan for dealing with racial or ethnic intergroup difficulty had been developed. The remaining two items dealt with assignment practices and percentages of students bused for desegregation purposes. The results for each evaluation group are reported below, based on data presented in Table VI-14.

a. Basic Elementary Sample

Principals in Basic Elementary schools were most likely to include "redrawing school boundaries" and "busing students from other areas" in their school desegregation plans; other alternatives were used infrequently. Approximately 69% of the principals reported that they had not developed a contingency plan for dealing with racial or ethnic intergroup difficulties, despite the mixture of racial or ethnic groups in their schools. Presumably such difficulties are relatively rare at the elementary level, and in fact, 25% of the respondents considered this item inapplicable.

The major assignment practices for Basic Elementary schools included "assignment by strict geographic area" and "busing to achieve greater racial balance." A few schools used geographic assignment with allowances for voluntary transfers. Approximately 51% of the Basic Elementary principals reported that no students were bused to their schools for desegregation purposes. Of the remaining 49%, 24 schools bused between 2% and 30% of their students for desegregation purposes. The majority of the Basic Elementary sample schools did not bus any of their students to other schools for desegregation purposes.

b. Basic Secondary Sample

"Redrawing school boundaries" and "busing students from other areas" were included most frequently in the desegregation plans of Basic Secondary sample schools. "Establishing schools with limited grade levels" was seldom reported.

TABLE VI-14. PERCENTAGES OF BASIC SCHOOLS HAVING VARIOUS ELEMENTS OF DESEGREGATION PLANS

Item	Basic Elementary	Basic Secondary
Elements of Desegregation Plan:		
Question not applicable	30.4	30.8
Redraw school boundaries	42.0	41.0
Non-contiguous attendance areas	15.9	10.3
Bus students from other areas	46.4	35.9
Schools with limited grade levels	7.2	5.1
Pair schools	10.1	10.3
Close schools	14.5	10.3
Open new school with boundaries to provide for desegregation	5.8	12.8
Schools have never been segregated	0.0	2.6
Development of Contingency Plans:		
Question not applicable	25.0	18.4
Yes, plan developed	5.9	42.1
No, plan not developed	69.1	39.5
Assignment Practices:		
By geographic area, no transfers	57.1	61.5
By geographic area, with transfers	10.2	23.1
Student choice	2.0	3.8
Busing for racial balance	28.6	11.5
Busing Into School:		
No students bused	50.7	68.2
2%-30% of students bused	34.8	29.5
37%-98% of students bused	14.5	2.3
Busing to Another School:		
No	75.4	90.9
Yes	24.6	9.1

A significantly larger percentage of principals in Basic Secondary schools than of those in Basic Elementary schools stated that a contingency plan had been developed for dealing with racial or ethnic intergroup difficulties.

Assignment by strict geographic area, or by geographic area with allowances for voluntary transfers, were the primary assignment methods for the Basic Secondary schools. Only 12% of the Basic Secondary principals considered "busing students to achieve greater racial balance" as their primary assignment method. This was a significantly smaller percentage than in the Basic Elementary sample. In connection with these results, only 32% of the principals reported that students were bused to their schools for desegregation purposes. The percentages of students bused were generally low, ranging from 2% to 17%. Fewer than 10% of the Basic Secondary schools (significantly lower than in the elementary sample) bused any of their students to other schools for desegregation purposes.

c. Summary

There were some differences between the Basic Elementary and Basic Secondary schools in their desegregation plans. Although "redrawing school boundaries" and "busing students from other areas" were common elements in the desegregation plans of both groups, Basic Elementary schools were more likely to use busing as a major assignment practice and to bus greater numbers of students for desegregation purposes than were Basic Secondary schools. However, Basic Secondary schools were more likely than Basic Elementary schools to have developed a contingency plan for dealing with racial or ethnic intergroup difficulties.

2. COMMUNICATION EFFORTS RELATED TO DESEGREGATION ACTIVITIES

Communication efforts among teachers, principals, and district superintendents with respect to desegregation activities and problems were also investigated for Basic Elementary and Basic Secondary schools (see Table VI-15). In general, such communication activities were somewhat more extensive at the secondary level. Many respondents considered several of the items inapplicable, so the results should be interpreted with caution.

a. Basic Elementary Sample

The majority of Basic Elementary principals (81%) had not received any memoranda related to desegregation activities from their district superintendents during the school year. Only 10% of the principals had held faculty meetings to discuss problems of desegregation or racial/ethnic intergroup tensions. In addition, meetings with school personnel and community or parent groups to discuss school desegregation plans had occurred in very few Basic Elementary schools (19%); in these schools, the number of meetings ranged from one to twelve with a mean of 4.3.

TABLE VI-15. PERCENTAGES OF BASIC SAMPLE PRINCIPALS REPORTING COMMUNICATION EFFORTS RELATED TO DESEGREGATION ACTIVITIES

Communication Items	Basic Elementary	Basic Secondary
Memoranda from Superintendents:		
Question not applicable	20.3	17.6
Yes, have received memo	9.4	17.6
No, have not received memo	70.3	64.7
Faculty Meetings:		
Question not applicable	15.9	0.0
Yes, have had meetings	9.5	32.4
No, have not had meetings	74.6	67.6
Meetings with Community Parents:		
Have had meetings	18.8	20.5
Number of meetings	4.3	6.4

b. Basic Secondary Sample

Approximately 82% of the Basic Secondary principals had not received memoranda related to desegregation activities from their district superintendents during the school year. However, 32% of the principals (significantly more than in the elementary sample) had held faculty meetings to discuss problems of desegregation or racial/ethnic intergroup tensions, while 20% had held community meetings to discuss desegregation plans.

D. STUDENT EXPOSURE TO ACADEMIC AND INTERGROUP PROGRAMS

Various data were collected on student exposure to reading, math, and intercultural programs in sample schools. In the treatment schools, principals were also asked to indicate how many of their students were participating in ESAA-funded compensatory reading or math programs, and coordinators were asked to estimate how long a typical student remained in the compensatory program. These data are presented in Table VI-16.

In addition, the Student Attendance and Exposure Log (SAL) provided a record of the number of hours each sample student in both treatment and control schools received instruction in reading, mathematics, and intercultural activities. Finally, teachers in both treatment and control schools were asked to indicate how much emphasis they placed (in terms of time spent) on a variety of reading and math objectives. Table VI-17 presents the SAL data on exposure to reading instruction and data on reading objectives emphasized by teachers; the latter data are shown separately for regular and remedial instruction. Table VI-18 presents parallel data for the math programs. SAL data for intergroup programs are presented in Table VI-19.

All entries in Tables VI-17 through VI-19 represent mean values across students (in the case of SAL data) or teachers.

TABLE VI-16. PARTICIPATION IN COMPENSATORY READING AND MATH

Participation in ESAA	Reading		
	Basic Elementary	Basic Secondary	Pilot Elementary
Percentage of students participating in ESAA-funded compensatory programs	24.4	17.3	44.5
Average length of stay in program (in months)	4.2	2.6	4.0
	Mathematics		
Percentage of students participating in ESAA-funded compensatory programs	28.5	15.6	53.4
Average length of stay in program (in months)	3.8	2.8	3.9

1. BASIC ELEMENTARY SAMPLE

a. Reading Exposure

On the average, about one-fourth of the students in the Basic Elementary treatment schools were participating in compensatory reading programs (Table VI-16). According to coordinators, students typically remained in compensatory reading for about four months. As shown in Table VI-17, students spent almost 11 hours per week in reading instruction, largely in group instruction, independent seat exercises, and individualized reading. An average of around 8% of the total reading time was spent in "pullout" compensatory reading.

Both regular and remedial teachers reportedly placed heaviest emphasis on learning word meanings and on improving conceptual abilities related to reading. Regular teachers also emphasized silent reading, while remedial teachers reported substantial emphasis on phonics or structural analysis.

b. Math Exposure

Approximately 28% of the students in the Basic Elementary treatment schools reportedly participated in compensatory math programs, with students typically remaining in the program for somewhat less than four months (Table VI-18).

TABLE VI-17. EXPOSURE TO READING INSTRUCTION

Reading Exposure Items	Basic Elementary		Basic Secondary		Pilot Elementary	
Total time spent in reading activities (hours per week)	10.7		8.3		11.0	
Percentage of Total Time Spent in:						
Group instruction	13.0		11.2		12.4	
Tutoring by older person	8.1		8.5		8.6	
Peer tutoring	7.4		7.9		7.5	
Machine-mediated or audiovisual instruction	8.4		8.4		8.5	
Games/contests	8.1		8.1		8.1	
Diagnostic test-taking	8.4		9.2		8.3	
Independent seat exercise	12.0		10.4		11.4	
Report/story writing	8.3		9.5		8.3	
Individualized reading	10.6		10.6		10.5	
Student presentation	7.6		8.4		7.8	
"Pullout" compensatory reading	8.1		8.0		8.7	
Teacher Emphasis on:*	Regular	Remedial	Regular	Remedial	Regular	Remedial
Improving conceptual abilities	2.6	2.6	2.4	2.5	2.6	2.7
Increasing attention span	2.3	2.4	2.0	2.3	2.3	2.4
Developing visual discrimination	2.2	2.5	1.9	2.2	2.2	2.6
Matching letters or words	1.9	2.1	1.6	1.8	2.0	2.3
Learning letter names	1.5	1.8	1.4	1.5	1.6	2.0
Developing a sight vocabulary	2.5	2.5	2.1	2.4	2.6	2.7
Learning word meanings	2.8	2.7	2.6	2.7	2.8	2.8
Phonics and/or structural analysis	2.6	2.7	1.9	2.2	2.6	2.8
Being read to	2.0	1.9	1.9	1.9	2.0	2.1
Reading aloud	2.3	2.3	2.1	2.0	2.4	2.4
Reading silently	2.8	2.5	2.6	2.6	2.8	2.7
Creative writing	2.2	1.7	2.2	1.9	2.1	1.8
Reading for enjoyment	2.5	2.2	2.3	2.4	2.5	2.4
Enriching cultural background	2.0	1.9	2.2	2.1	2.1	2.1

*Scale used:
1=Little or no time spent
2=Some time spent
3=A great deal of time spent

TABLE VI-18. EXPOSURE TO MATH INSTRUCTION

Math Exposure Items	Basic Elementary		Basic Secondary		Pilot Elementary	
Total time spent in math activities (hours per week)	7.4		5.0		7.2	
Percentage of Total Time Spent in:						
Group instruction	13.5		12.2		12.9	
Tutoring by older person	8.8		9.8		9.5	
Peer tutoring	8.4		9.4		8.6	
Machine-mediated or audiovisual instruction	8.9		9.4		9.0	
Games/contests	9.2		9.4		9.2	
Diagnostic test-taking	13.6		10.4		12.7	
Independent seat exercises	13.3		11.6		12.7	
Report writing	7.7		9.2		8.0	
Student presentation	8.3		9.5		8.6	
"Pullout" compensatory math	8.2		9.2		8.8	
Teacher Emphasis on:*	Regular	Remedial	Regular	Remedial	Regular	Remedial
Learning math vocabulary	2.1	2.2	2.1	1.8	2.2	2.2
Learning number concepts	2.8	2.8	2.6	2.6	2.8	2.8
Learning symbols and rules	2.4	2.4	2.5	2.2	2.4	2.4
Verbal problem-solving	2.3	2.2	2.3	1.8	2.3	2.3
Learning equations	2.4	2.2	2.4	1.7	2.3	2.0
Learning fundamental operations	2.9	2.9	2.7	2.9	2.9	2.7
Drill	2.7	2.8	2.5	2.8	2.7	2.8
Writing numbers	N/A	2.4	N/A	2.3	N/A	2.5

*Scale used: 1=Little or no time spent
2=Some time spent
3=A great deal of time spent

TABLE VI-19. EXPOSURE TO OTHER PROGRAMS IN THE SAMPLE SCHOOLS

Exposure to Other Programs	Basic Elementary	Basic Secondary	Pilot Elementary
Number of hours per week spent in:			
Field trips	2.3	2.7	2.8
Interracial programs	2.1	2.6	2.5
Cultural enrichment programs	3.7	2.5	4.0
ESL or bilingual activities	2.1	2.5	2.5
Group counseling/guidance	2.2	2.5	2.6
Individual counseling/guidance	2.1	2.6	2.5

The SAL data for math indicated that students were receiving an average of 7.4 hours of math instruction per week, with the largest amounts of time being spent in diagnostic test-taking, group instruction, and independent seat exercises. As in reading, about 8% of the total math instruction was spent in "pullout" compensatory math.

Both regular and remedial teachers reported placing the most emphasis on learning fundamental operations, number concepts, and drill.

c. Intergroup Exposure

Students in the Basic Elementary schools received their greatest exposure to intergroup programs in the form of cultural enrichment activities (almost four hours per week) followed by field trips and group counseling activities.

2. BASIC SECONDARY SAMPLE

a. Reading Exposure

Overall, approximately 17% of the students in the Basic Secondary treatment schools (compared with 25% in Basic Elementary schools) were participating in compensatory reading programs; students typically remained in the program for about two-and-one-half months.

The SAL data indicated that an average of 8.3 hours per week were spent in reading instruction (again, slightly less than in elementary schools), with group instruction, independent seat exercises, and individualized reading predominating. Roughly 8% of the time was devoted to compensatory reading.

Both regular and remedial teachers placed greater emphasis on word meanings, silent reading, and conceptual abilities related to reading.

b. Math Exposure

Approximately 16% of the students in treatment schools were participating in compensatory math programs. Weekly exposure to math instruction for all students in the sample averaged five hours, or about two-thirds the amount reported for elementary schools. As in the Basic Elementary sample, diagnostic test-taking, group instruction, and independent seat exercises were the most common activities, and around 9% of the total time was devoted to "pullout" compensatory instruction.

Both regular and remedial teachers were similar to the Basic Elementary teachers in terms of emphasis given to different instructional objectives.

c. Intergroup Exposure

Of the intergroup activities, the greatest amount of exposure for secondary students was in field trips (2.7 hours per week), followed by interracial programs and individual counseling/guidance.

3. PILOT ELEMENTARY SAMPLE

a. Reading Exposure

In the Pilot treatment sample, an average of 44% of the students participated in compensatory reading; this was almost twice the percentage reported in Basic Elementary schools, and presumably reflects the larger numbers of low-achieving students in Pilot schools. About 8% of the total 11 hours per week spent in reading was devoted to compensatory reading. Both regular and remedial reading programs placed considerable emphasis on word meanings, and on phonic or structural analysis.

b. Math Exposure

In Pilot Elementary treatment schools, over half of the students participated in compensatory math programs; again, this was almost double the percentage reported in Basic Elementary schools. Across both treatment and control schools, as indicated by SAL data, students received an average of about seven hours per week of instruction in math, with group instruction, diagnostic test-taking, and independent seat exercises predominating. Approximately 9% of the total time was devoted to "pullout" compensatory instruction. As in the Basic samples, both regular and remedial Pilot teachers emphasized number concepts, fundamental operations, and drill.

Surprisingly, at least to the evaluation team, Pilot Elementary students (in treatment and control schools combined) reportedly received greater average exposure to interracial programs and to cultural enrichment programs than students in Basic Elementary schools. Since the Basic schools generally had a more even mix of minority and non-minority students, compared with Pilot schools, which tended to be predominantly minority or non-minority, it had been assumed that the Basic schools would provide greater exposure to activities designed to increase interracial awareness and cooperation.

4. TREATMENT-CONTROL COMPARISONS OF EXPOSURE

T-tests were performed on school-level treatment-control differences in each of the SAL exposure categories. No significant differences were found between the two groups.

In reading, teacher emphasis on reading for enjoyment was significantly higher ($p = <.05$) for treatment teachers in regular reading for both the Basic Elementary and Secondary samples, and in remedial reading for the Pilot sample.

In addition, regular reading teachers in treatment schools in the Basic Secondary sample placed significantly more emphasis on creative writing and enriching cultural background than did teachers in control schools. There were no significant differences between treatment and control schools in math emphasis.

Overall, these results are consistent with comparisons reported in Chapter V, where virtually no treatment-control differences were found in the total per-pupil funds allocated for reading or math instruction. Thus, while some statistically significant differences were found in the general per-pupil expenditures of treatment and control schools, those differences almost totally disappeared in more detailed examinations of dollar allocations and student exposure times specifically in the areas of reading and math instruction. The importance of this finding is obvious, since two of the major outcome dimensions used in this study's evaluation of ESAA program impact are treatment-control differences in reading and math achievement gains. Under the circumstances reported here, the likelihood of such outcome differences being found appears extremely small.

5. YEAR ONE-YEAR TWO COMPARISONS

Comparison of SAL data for the two years of the study indicates few between-year differences in the total amount of time spent in reading and math activities. Relative emphasis on various activities also remained about the same, although the amount of time spent on "pullout" compensatory activities was larger in Year Two.

E. RELATIONSHIP OF SERVICES TO NEEDS

Pretest achievement scores described previously in Chapter IV indicated that the sample students had severe academic deficiencies in both reading and math. Furthermore, there were indications that districts' program funding was directed toward lower-achieving students. At this point, it is useful to assess whether ESAA dollars, specifically, were translated into services targeted to meet the identified academic needs of the evaluation students in each of the three groups. In addition, for Basic program students only, services targeted for intergroup/cultural-enrichment needs were also examined. To explore these questions, only ESAA-funded (treatment) schools were considered.

1. OPERATIONAL DEFINITIONS

Academic need was defined by pretest achievement scores in total reading and total math. A low score represented a high level of need.

Intergroup need was defined by two items included in the Individual Student Information Questionnaire, which was completed by the teachers. These items asked about the degree to which each student interacted with students of other racial or ethnic groups in recreational activities and in class projects and discussions. In addition, for the Basic Secondary students only, pretest scores on the Perceived School Discrimination and Student Intergroup Relations subscales of the School Climate Instruments were also included in the definition of intergroup need.

Cultural enrichment need was defined at both the elementary and secondary levels in terms of the two SES measures developed and discussed in Chapter IV: reading-related SES and luxury-item SES. Also used was one item from the Student Questionnaires, asking whether a foreign language was spoken in the home.

Extent of services provided was defined in terms of various estimates of average total weekly exposure in reading, math, intergroup, cultural enrichment, and ESL or bilingual activities; all of these estimates were based on data from the Student Attendance and Exposure Logs (SALs). (The SAL was completed by the teachers at the elementary level and by the students themselves at the secondary level.)

2. METHOD

Pearson correlation coefficients were computed between each pretest variable and its corresponding average weekly exposure estimate; appropriateness of services provided was assumed to be indicated by the magnitude of the correlation between each pair of variables. Since actual pretest scores were used in the calculations, and since a low pretest score corresponds to a high level of need, a strong negative correlation would indicate that services in a particular program activity were given to students who showed the greatest need for that activity. All correlation coefficients were computed, at the student level only, for each of the three evaluation groups.

Individual students were used as the unit of analysis because it was felt that account should be taken of important differences among students within classrooms and within schools, both in terms of needs and in terms of exposure to various educational experiences. However, the correlations obtained in this manner reflect a combination of inter-school and intra-school variations in the variables considered; thus, the resulting correlation coefficients may tend to be larger than would be found within any given school.

3. RESULTS

a. Achievement Needs

Table VI-20 presents the Pearson correlation coefficients between pretest reading and math scores, and reading and math exposure estimates for each evaluation group. For the reading and math exposure estimates, all individual components within each area were summed to produce total reading and math weekly exposure variables.

(1) Basic Elementary

Within the Basic Elementary sample, the largest negative correlations (i.e., the best correspondence between achievement needs and services) occurred for the fifth-grade students in both reading and math. Services in reading and math also corresponded somewhat to need for the lower-achieving third-grade students.

(2) Basic Secondary

Correlation coefficients for the Basic Secondary students were significant for grade 11 only, in both reading and math. These coefficients indicated only a limited relationship between academic need and amount of exposure received in class.

(3) Pilot Elementary

There was a statistically significant tendency for low-achieving fifth-grade Pilot Elementary students to receive greater exposure to reading and math activities. In addition, low-achieving third-grade students tended to receive additional exposure in math activities.

Overall, there was a general but weak relationship between academic needs in reading or math and duration of exposure to instruction in the respective content areas. Virtually all of the correlations found were in the direction of greater exposure for more needy students. However, the instances of statistically significant correlations between pretest scores and exposure were scattered, and most correlation coefficients were under .20.

b. Intergroup and Cultural Enrichment Needs

Districts funded by Basic grants were encouraged to provide services to ESAA students in the intergroup/cultural enrichment area. (Services provided by Pilot funds were intended to focus on improvement in achievement only.) Relationships between intergroup and cultural enrichment needs, and their corresponding exposure estimates, were investigated for both the Basic Elementary and Basic Secondary students.

There were no significant correlations for either group between intergroup needs and amount of exposure to intergroup activities. Results for the cultural enrichment needs are dicussed below for each group.

TABLE VI-20. PEARSON CORRELATION COEFFICIENTS BETWEEN ACHIEVEMENT PRETEST SCORES AND SERVICES RECEIVED

Evaluation Group	Grade Level	Type of Service (Exposure)	Pretest Achievement Scores	
			Reading	Mathematics
Basic Elementary	3	Reading	-.16*	-
		Math	-	-.18*
	4	Reading	-.04	-
		Math	-	-.00
	5	Reading	-.45*	-
		Math	-	-.45*
Basic Secondary	10	Reading	-.70	-
		Math	-	-.06
	11	Reading	-.12*	-
		Math	-	-.11*
	12	Reading	.06	-
		Math	-	.08
Pilot Elementary	3	Reading	-.07	-
		Math	-	-.23*
	4	Reading	.01	-
		Math	-	-.07
	5	Reading	-.25*	-
		Math	-	-.27*

*Indicates significance beyond the .01 level.

(1) Basic Elementary

Table VI-21 presents the correlation coefficients relating amount of cultural enrichment exposure with two student SES measures (SES/reading-related variables and SES/luxury item variables). For the Basic Elementary students, correlations between amount of cultural enrichment exposure and the two SES variables were significant beyond the .01 level at each grade level. The negative correlation coefficients were particularly high for the fourth-grade students.

TABLE VI-21. PEARSON CORRELATION COEFFICIENTS BETWEEN CULTURAL ENRICHMENT NEEDS AND SERVICES RENDERED

Evaluation Group	Grade Level	Correlation of Amount of Cultural Enrichment Exposure with:	
		SES/Reading Materials	SES/Luxury Items
Basic Elementary	3	-.47*	-.52*
	4	-.75*	-.76*
	5	-.37*	-.37*
Basic Secondary	10	-.37*	-.36*
	11	-.30*	-.29*
	12	-.39*	-.38*

*Indicates significance beyond the .01 level. Note that a negative correlation represents a desirable targeting of services to needy students.

(2) Basic Secondary

Results for the Basic Secondary students, with respect to cultural enrichment needs, were similar to those described above for the Basic Elementary students, though the magnitudes of the coefficients were not quite so high.

In general, the results for both the elementary and the secondary levels indicate that the Basic sample schools tended to focus their cultural enrichment activities on lower-SES students, who presumably had a greater need for such activities. Most of the correlations were statistically significant and of appreciable absolute magnitude. It should be emphasized again, however, that correlational analyses cannot provide direct evidence concerning possible causal relationships between the two sets of variables (needs and exposure time). That is, it cannot be proven that the differential exposure time resulted from the schools' awareness of differential student needs. Nevertheless, the consistency of the relationships seems encouraging, even aside from issues of intent or causality.

c. ESL (Bilingual) Needs

As a measure related to cultural enrichment, the amount of ESL (bilingual activities) exposure was examined for two groups of Basic Elementary and Basic Secondary students, using the t-test of differences in means. The two groups were (1) those whose primary language at home was English, and (2) those whose primary language at home was something other than English. At each grade level, in both the Basic Elementary and the Basic Secondary samples, students whose primary language at home was not English received significantly greater exposure to ESL or bilingual activities than students from English-speaking homes ($p < .01$). Again, this finding suggests a focusing of relevant school activities on students with the greatest needs.

F. SUMMARY OF RESULTS: SERVICES

Key features in the discussion of educational services for sample students were as follows:

- The number of students per teacher ranged from 22 to 26 in regular reading and math programs, and from 11 to 20 in remedial programs, with the lowest ratios occurring in the Basic Elementary sample and the highest in the Basic Secondary sample.

- According to ESAA coordinators and principals, the major goals for both reading and math compensatory programs in all samples focused on raising students' achievement to grade level and on increasing motivation to learn.

- In reading, the predominant approach of the teachers was linguistic-phonetic, with emphasis also being placed on the language experience approach and the sight method. Elementary-level teachers evidently used a wider variety of instructional approaches in a given classroom than did secondary-level teachers. In math, the major approach was based on the basic texts, with programmed texts and the laboratory approach also being used frequently, particularly in remedial programs.

- Considerable emphasis was placed, particularly in the elementary samples, on the use of objectives in teaching, on diagnostic testing, and on individualized or small-group instruction.

- Pilot teachers reported significantly greater use of programmed materials in math than Basic Elementary teachers; they also reported significantly greater use of a modified alphabet in reading instruction, and less use of basic texts in math. Taken together, these results suggest a more innovative, less traditional approach on the part of Pilot Elementary teachers, which is in keeping with the Pilot Program's emphasis on innovative projects.

- In most instances, the major criteria for grouping students were achievement grade level and specific skills deficiencies.

- About one-fourth of the Basic treatment schools reported having an ESAA-funded guidance/counseling program. One-third of the Basic Elementary and two-fifths of the Basic Secondary treatment schools had ESAA-funded intergroup relations or cultural enrichment programs. Finally, two-fifths of the Basic Elementary and one-fourth of the Basic Secondary treatment schools had ESAA-funded staff development programs.

- Desegregation plans in the Basic schools focused primarily on redrawing school boundaries and on busing students from other areas; the most commonly used method of assigning students to schools was by geographic area.

- Participation in ESAA-funded compensatory reading programs ranged from 17% of all students in the Basic Secondary schools to 44% in the Pilot schools. In math, participation ranged from 16% in the Basic Secondary sample to 53% in the Pilot sample.

- Total hours per week spent by students in reading ranged from eight to eleven hours, and in math from five to seven hours.

- In both elementary samples, students' exposure to non-academic (intergroup) programs was greatest in cultural enrichment and field trip activities, while at the secondary level, major emphasis was on field trips, interracial programs, and individual counseling and guidance.

- A number of significant negative correlations between achievement pretest and amount of exposure to instruction indicated a tendency for students with greater academic needs to receive more exposure to instruction. However, the absolute magnitude of the correlation coefficients was generally low (i.e., below .20).

- There was a strong relationship between students' SES (as defined by two categories of possessions in the home) and amount of exposure to cultural enrichment programs, indicating that students with low SES were receiving more exposure to such programs.

- Of the many program characteristics examined, statistically significant treatment-control differences were found in only a few isolated cases—essentially at the chance level of occurrence. The major exception was in teachers' use of special personnel in their teaching efforts, with treatment teachers generally using such personnel more frequently.

Overall, results of the comparisons, particularly in the areas of reading and math instruction, failed to support the original assumption that treatment and control schools would differ substantially in important program dimensions having direct relevance to the study's outcome measures.

CHAPTER VII

RESOURCE ALLOCATION: PROGRAM-LEVEL COSTS

This chapter examines program-level resource costs associated with reading and math instruction in classes containing ESAA sample students. Of particular importance in this investigation was the relative emphasis on the use of different staff resources for reading and math instruction and the per-pupil resource costs associated with that differential emphasis within each sample. A corollary question was whether there were differences in the way treatment and control schools allocated their staff resources for reading and math instruction.

The methodology used here is based on a resource cost allocation approach similar to the one advanced by Sue A. Haggart in 1971,* and includes two primary components that distinguish it from the approaches taken in Chapters V and VI of this report. Resource cost estimates used in this analysis are based, in part, on data from classroom teachers indicating how often various staff resources were used in reading or math instruction within sample classrooms. The second component is a set of average salaries for each type of staff resource. By combining both types of information, cost estimates were derived for each staff resource allocated in a school's reading or math program.

This approach differs from the expenditure approach taken in Chapter V, in that the data reported in that earlier chapter were collected from accounting records maintained by school district business offices. As noted in Chapter V, regular expenditures within a school were estimated on the basis of a district-wide average; supplemental expenditures within a school were estimated on the basis of actual supplemental funding to the school. However, in the case of supplemental expenditures, a school-wide average was calculated and assumed to be indicative of the level of compensatory services provided to ESAA sample students. There are several problems with this approach, as reported in the earlier chapter, one of which is that the compensatory services actually received by ESAA students within a particular school may be underestimated.

By contrast, the resource cost data reported in the present chapter were estimated on the basis of the staff resources actually used in classes in which ESAA sample students received instruction. Therefore, these cost data should be a closer approximation of the relative cost differences among sample schools in providing reading and math services than are the district and school expenditure data.

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*Sue A. Haggart, Program Cost Analysis in Educational Planning, The Rand Corporation, P-4744, December 1971.

Another difference in this chapter is that the scope of the resource cost analysis reported here is narrower than that reported in Chapter V. The latter chapter encompasses expenditures for such services as guidance and counseling, cultural heritage, and health care, in addition to reading and math; furthermore, it takes into account such resources as new equipment, materials and supplies, planning and evaluation, capital outlay, and inservice training, as well as staff. Finally, a distinction is made in the expenditure chapter between regular and supplemental funds, and funding sources are identified within the supplemental category. The present chapter focuses only on staff resources allocated to reading and math services and makes no attempt to associate resource costs with funding type or source.

This chapter also differs from Chapter VI, in that the resource allocation data have been transformed into a common metric--dollars--that facilitates systematic comparative analyses across different staff resources, and permits the combination of individual resource costs so as to obtain total instructional staff resource costs for reading and math services in each school.

The following section presents a more detailed discussion of the procedures used to convert resource allocation data into resource costs, and specifies the resource cost variables used in the analysis. The discussion is followed by a descriptive analysis of the major resource cost patterns within each sample, and an examination of the treatment-cost differences in the per-pupil resource allocation costs.

A. METHODOLOGY

1. SOURCE OF DATA

As stated earlier, the resource cost analysis is based, in part, on resource use information collected from classroom teachers who provided reading and math instruction to students in the sample. Classroom teachers were asked to complete a self-administered questionnaire that included items on the amount of time they devoted to instruction in regular or remedial reading or math. In addition, teachers were asked to indicate the amount of time they used special staff to assist with regular or remedial reading or math instruction within their classes or to provide counseling services to students. The special staff on whom data were collected included remedial reading specialists, remedial math specialists, instructional aides, resource teachers, media specialists, and school counselors.

In some cases, special pullout classes focusing on remedial reading or math were provided for ESAA sample students; in these cases, remedial teachers were asked to complete the same self-administered questionnaire as that completed by regular teachers. Using data on the amount of time devoted to reading or math instruction each week by each school staff member, the evaluation staff calculated the proportionate allocation of each resource to specific instructional activities. The proportionate figures were in turn used to determine the relative costs for each type of staff resource used for classroom instruction or for counseling services.

Salary information collected from school district business offices was used to calculate average salaries for each type of staff member on whom data were analyzed. Average salaries were used to control inter-district cost-of-living variations as reflected in actual staff salaries. The use of average salaries permits the application of a standardized dollar metric to the resources allocated for reading and math instruction. While this procedure distorts, to some extent, the actual reading and math costs incurred by a given school, it provides a standardized basis for meaningful comparisons among schools.

Two types of average salary scales were used. For regular classroom teachers, information was collected on formal educational training and previous teaching experience, and the average salary scale was designed to reflect these educational and experience differences. Hence, the average salary assigned to a particular teacher depended on the teacher's prior teaching experience and level of formal education. Average annual salaries for regular teachers ranged from $8,668 (for a teacher without a Bachelor's Degree and with less than one year of previous experience) to $18,479 (for a teacher with a Ph.D. Degree and more than 20 years of experience).

A different procedure was used for the special staff. Inasmuch as data on their previous training and experience were not collected, only one "standardized" or average salary was assigned to each type of special staff member. Because school districts normally have separate salary schedules for elementary and secondary school staff, this distinction was maintained in computing average salaries. The average salaries used in this analysis are shown in Table VII-1.

TABLE VII-1. AVERAGE SALARIES FOR SPECIAL STAFF
USED IN ELEMENTARY AND SECONDARY SCHOOLS
(INCREASED BY 15% TO INCLUDE FRINGE BENEFITS)

Type of Staff	Elementary Schools	Secondary Schools.
Remedial reading specialist	$13,398	$13,116
Remedial math specialist	12,806	12,738
Instructional aide	4,306	4,452
Resource teacher	12,273	12,533
Media specialist	15,850	15,729
School counselor	14,933	15,228

2. RESOURCE COST CALCULATION PROCEDURES

In calculating the cost associated with allocating a particular staff resource to reading or math instruction, it was necessary to apportion teachers' time among the various school activities for which they were responsible, and to control for the possible influence of variations in length of school day and school year. In deriving comparable proportions to use in calculating proportional resource costs, standard parameters were used for a school day and school year. For a standardized school year, 170 instructional days were used. It was assumed that regular teachers work 40 hours each week, while most other special staff, such as specialists and resource teachers, work 30 hours each week. For instructional aides, however, a 25-hour work week was used.

Using these standardized parameters and detailed information on the time a teacher spent in reading or math instruction each week, reading and math program factors were calculated for each teacher. The program factors, in turn, were multiplied by the teacher's average annual salary to determine the proportion of the salary that could be considered a reading or math annual resource cost. The same basic procedure was used to compute the costs associated with using the various staff listed in Table VII-1 to assist in providing reading or math instruction in each school.

It should be kept in mind that the resource costs associated with the use of special staff members are a function only of the amount of time each of these persons typically spent with students in the sample classes, while the cost associated with teachers is a function of both their time and their education and experience levels in the salary structure.

Once class-level resource costs were calculated within each sample grade, school-level data for a particular grade were obtained by merely aggregating the class resource costs for that grade.

For each analysis, per-pupil resource costs were used instead of total dollar cost figures. Per-pupil costs for each school were calculated by dividing the total dollar cost for each type of resource by the number of students in a teacher's regular or remedial class. In some classes, all of the students were ESAA sample students; in other classes, only some of the students were in the sample. For calculation purposes it was assumed that all students within a class received equal exposure to the staff resources used for reading or math instruction. While it would have been preferable to have detailed information on the amount of exposure of each ESAA sample student to instructional resources within the class or school, it was not feasible, within the scope of this evaluation, to collect such data.

B. RESULTS

Results of the resource cost analyses are presented in the following pages. The major resource cost allocation patterns that typify each evaluation sample are discussed; treatment and control schools are compared, and are briefly summarized. "Total costs" reported in each table include the costs for classroom teachers, instructional aides, and remedial specialists, but exclude the costs for resource teachers, media specialists, and school counselors.

1. RESOURCE COST ALLOCATIONS WITHIN EACH SAMPLE

a. Basic Elementary Sample

Basic Elementary schools tended to allocate, on the average, somewhat more staff resources to remedial reading than to regular reading (see Table VII-2). The average difference, about $23 per pupil, was accounted for by somewhat greater use of teachers and instructional aides in remedial reading. Other types of staff, such as media specialists, resource teachers, and counselors were used about as often in regular reading as in remedial reading.

Basic Elementary schools, on the average, devoted more than twice the amount of staff resources to reading instruction as to math instruction. While the average per-pupil allocation cost for both regular and remedial reading was $290, the cost for math was $136.

In math instruction, somewhat greater emphasis was placed on regular math than on remedial math. The comparative emphasis on regular math is best seen by comparing the median resource costs for regular and remedial math in Table VII-2. At least half of the Basic Elementary schools did not provide remedial math programs for ESAA sample students, whereas some amount of regular math instruction was provided in all the schools.

As one would expect, resource costs associated with using classroom teachers and instructional aides to provide reading and math instruction accounted for most of the staff resource costs in the Basic Elementary sample. Somewhat surprising was the relatively limited use of remedial specialists in both math and reading instruction.

b. Basic Secondary Sample

Basic Secondary schools, like Basic Elementary schools, tended on the average to allocate somewhat more resources to remedial reading than to regular reading, as shown in Table VII-3. About $26 more per pupil was spent on remedial reading, again reflecting somewhat greater use of instructional aides and classroom teachers in remedial reading than in regular reading. Basic Secondary schools placed twice as much emphasis on reading instruction as on math instruction; the average per-pupil cost was $190 for reading and only $92 for math. This greater emphasis on reading can also be seen in the higher average per-pupil costs for each resource used in reading instruction.

Unlike the Basic Elementary sample, substantially more emphasis was placed on regular math instruction than on remedial math instruction in the Basic Secondary sample. The differential emphasis resulted from greater use of teachers and remedial specialists in regular math instruction; instructional aides were used about equally in both regular and remedial math instruction.

On the average, Basic Secondary schools allocated fewer resources to both reading and math instruction than did Basic Elementary schools (see Table VII-4). Overall, Basic Elementary schools allocated about $155 more for each

TABLE VII-2. PROGRAM-LEVEL PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL READING AND MATH INSTRUCTION IN BASIC ELEMENTARY SCHOOLS*

Staff	Regular Reading Instruction				Remedial Reading Instruction				Combined Regular and Remedial Reading Instruction			
	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range
Classroom Teacher	$67 (N=61)	$61	$29	$29-$167	$85 (N=41)	$85	$85	$0-$288	$185 (N=41)	$184	$127	$30-$463
Instructional Aide	$24 (N=65)	$20	$25	$0-$133	$49 (N=51)	$33	$53	$0-$177	$75 (N=49)	$69	$64	$0-$273
Remedial Specialist	$26 (N=65)	$23	$17	$0-$83	--	--	--	--	$26 (N=65)	$23	$17	$0-$83
Resource Teacher	$13 (N=65)	$11	$13	$0-$65	$12 (N=48)	$0	$23	$0-$102	$25 (N=45)	$16	$26	$0-$177
Media Specialist	$3 (N=65)	$2	$4	$0-$18	$5 (N=49)	$0	$11	$0-$48	$8 (N=46)	$3	$12	$0-$50
Counselor	$3 (N=65)	$1	$2	$0-$9	$7 (N=48)	$0	$13	$0-$47	$9 (N=45)	$3	$12	$0-$49
Totals	$117 (N=61)	$104	$52	$30-$279	$140 (N=41)	$137	$134	$0-$465	$290 (N=41)	$253	$188	$30-$758

*The column entries do not necessarily add up to the "total" costs; this is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

TABLE VII-2. PROGRAM-LEVEL PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL READING AND MATH INSTRUCTION IN BASIC ELEMENTARY SCHOOLS* (CONT'D.)

Staff	Regular Math Instruction				Remedial Math Instruction				Combined Regular and Remedial Math Instruction			
	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range
Classroom Teacher	$45 (N=61)	$42	$28	$10-$164	$35 (N=48)	$0	$67	$0-$251	$86 (N=45)	$51	$88	$10-$379
Instructional Aide	$16 (N=69)	$10	$20	$0-$114	$32 (N=54)	$0	$52	$0-$148	$47 (N=54)	$21	$54	$0-$172
Remedial Specialist	$10 (N=69)	$5	$12	$0-$63	$8 (N=52)	$0	$24	$0-$107	$17 (N=52)	$4	$29	$0-$121
Resource Teacher	$3 (N=69)	$2	$4	$0-$25	$6 (N=51)	$0	$18	$0-$102	$9 (N=51)	$2	$18	$0-$108
Media Specialist	$1 (N=68)	$0	$2	$0-$9	$2 (N=53)	$0	$8	$0-$48	$3 (N=53)	$0	$9	$0-$50
Counselor	$1 (N=67)	$0	$2	$0-$10	$5 (N=54)	$0	$13	$0-$47	$6 (N=54)	$0	$13	$0-$47
Totals	$72 (N=61)	$62	$44	$21-$314	$66 (N=46)	$0	$128	$0-$455	$136 (N=42)	$68	$138	$21-$481

*The column entries do not necessarily add up to the "total" costs; this is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

TABLE VII-3. PROGRAM-LEVEL PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL READING AND MATH INSTRUCTION IN BASIC SECONDARY SCHOOLS*

Staff	Regular Reading Instruction				Remedial Reading Instruction				Combined Regular and Remedial Reading Instruction			
	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range
Classroom Teacher	$41 (N=35)	$38	$15	$7-$81	$69 (N=32)	$65	$77	$0-$265	$120 (N=28)	$109	$77	$26-$301
Instructional Aide	$12 (N=37)	$11	$11	$0-$49	$27 (N=34)	$6	$42	$0-$144	$44 (N=30)	$30	$42	$1-$169
Remedial Specialist	$16 (N=36)	$14	$9	$0-$36	--	--	--	--	$16 (N=36)	$14	$9	$0-$36
Resource Teacher	$6 (N=36)	$5	$3	$1-$13	$8	$0	$14	$0-$70	$14 (N=30)	$9	$15	$1-$75
Media Specialist	$3 (N=36)	$2	$3	$0-$10	$5 (N=35)	$0	$11	$0-$49	$8 (N=30)	$4	$11	$0-$50
Counselor	$3 (N=36)	$2	$3	$0-$13	$6 (N=35)	$0	$12	$0-$53	$10 (N=30)	$5	$13	$0-$55
Totals	$71 (N=34)	$66	$26	$34-$126	$97 (N=30)	$69	$111	$0-$408	$190 (N=25)	$160	$110	$68-$491

*The column entries do not necessarily add up to the "total" costs; this is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different veriables.

TABLE VII-3. PROGRAM-LEVEL PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL READING AND MATH INSTRUCTION IN BASIC SECONDARY SCHOOLS* (CONT'D.)

Staff	Regular Math Instruction				Remedial Math Instruction				Combined Regular and Remedial Math Instruction			
	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range
Classroom Teacher	$39 (N=28)	$34	$25	$8-$107	$15 (N=31)	$0	$60	$0-$256	$75 (N=22)	$36	$128	$8-$584
Instructional Aide	$8 (N=40)	$3	$11	$0-$43	$9 (N=37)	$0	$30	$0-$144	$16 (N=36)	$5	$34	$0-$145
Remedial Specialist	$6 (N=40)	$5	$6	$0-$21	$2 (N=35)	$0	$5	$0-$26	$8 (N=34)	$5	$8	$0-$33
Resource Teacher	$6 (N=40)	$6	$6	$0-$25	$3 (N=35)	$0	$10	$0-$50	$9 (N=34)	$7	$11	$0-$50
Media Specialist	$2 (N=39)	$0	$2	$0-$7	$0 (N=35)	$0	$2	$0-$10	$2 (N=33)	$0	$3	$0-$13
Counselor	$1 (N=40)	$0	$2	$0-$9	$0 (N=35)	$0	$2	$0-$14	$2 (N=34)	$0	$4	$0-$17
Totals	$56 (N=28)	$47	$31	$11-$129	$8 (N=30)	$0	$46	$0-$251	$92 (N=22)	$53	$134	$11-$609

*The column entries do not necessarily add up to the "total" costs; this is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

TABLE VII-4. COMBINED PER-PUPIL RESOURCE COSTS FOR READING AND MATH INSTRUCTION IN THE BASIC AND PILOT SAMPLES*

Staff	Basic Elementary Sample				Basic Secondary Sample				Pilot Elementary Sample			
	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range
Classroom Teacher	$282 (N=32)	$245	$193	$51-$819	$159 (N=15)	$128	$113	$35-$401	$202 (N=21)	$176	$122	$64-$432
Instructional Aide	$121 (N=43)	$97	$101	$0-$323	$53 (N=26)	$43	$52	$3-$216	$98 (N=28)	$75	$76	$0-$290
Reading Specialist	$26 (N=65)	$23	$17	$0-$83	$16 (N=36)	$14	$9	$0-$36	$24 (N=43)	$24	$15	$0-$69
Math Specialist	$17 (N=52)	$4	$29	$0-$121	$8 (N=34)	$5	$8	$0-$33	$12 (N=31)	$2	$20	$0-$96
Resource Teacher	$32 (N=38)	$21	$32	$0-$128	$26 (N=25)	$20	$19	$3-$83	$38 (N=29)	$25	$39	$0-$173
Media Specialist	$11 (N=38)	$3	$18	$0-$78	$10 (N=25)	$6	$11	$0-$50	$11 (N=27)	$5	$13	$0-$49
Counselor	$15 (N=38)	$4	$24	$0-$97	$12 (N=25)	$8	$13	$0-$58	$7 (N=26)	$2	$12	$0-$53
Totals	$394 (N=29)	$362	$263	$51-$1,048	$239 (N=12)	$217	$127	$87-$453	$311 (N=19)	$227	$203	$94-$735

*The column entries do not necessarily add up to the "total" costs; this is because the various calculations in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

student in reading and math than Basic Secondary schools. This higher allocation occurred with regard to virtually all staff resources, suggesting that Basic Secondary schools placed less emphasis on instruction in basic skills than did Basic Elementary schools.

c. Pilot Sample

In contrast to the Basic samples, the data for Pilot schools indicated greater resource allocation for regular reading instruction than for remedial reading instruction. The difference, about $26 per pupil, was partly due to the use of reading specialists in regular reading. Also contributing to the difference was the apparent absence, in about half of the Pilot schools, of remedial reading programs. The absence of such programs is suggested by the zero medians reported in Table VII-5. Because Pilot schools are more disadvantaged, in general, than Basic schools (see Chapter IV), one explanation of this result is that no distinction is being made between regular and remedial services in the Pilot schools and that many services usually classified as remedial services are being labeled as regular instruction in these schools.

As in the Basic samples, greater resources were devoted to reading than to math in the Pilot schools. The higher resource costs, which amounted to about $100 more per pupil for reading instruction, resulted primarily from greater use of classroom teachers, aides, and specialists for reading than for math. Within math, there was a slight tendency to provide more resources for regular math than for remedial math, although the individual allocation costs were fairly similar.

d. Summary of the Resource Allocations for Reading and Math Instruction

Across the three samples, schools typically allocated more staff resources to reading instruction than to math instruction, and therefore reported higher reading instruction costs. In the Basic samples, staff resources allocated to reading were twice as large as those allocated to math, while the difference in Pilot schools was less dramatic.

The Pilot and Basic Elementary schools placed much greater emphasis on basic reading and math instruction than the Basic Secondary schools. This differential emphasis is demonstrated by larger total resource costs for both reading and math instruction incurred by the elementary schools.

Within the Basic Elementary sample, slightly more staff resources were typically allocated to remedial reading than to regular reading. The resource allocations for regular and remedial math were very similar, with slightly greater emphasis placed on regular math.

Within the Basic Secondary sample, schools typically had slightly higher resource costs for remedial reading than for regular reading. However, regular math accounted for the largest share of math resources, with at least half of the secondary schools allocating no staff resources to remedial math.

TABLE VII-5. PROGRAM-LEVEL PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL READING AND MATH INSTRUCTION IN PILOT ELEMENTARY SCHOOLS*

Staff	Regular Reading Instruction				Remedial Reading Instruction				Combined Regular and Remedial Reading Instruction			
	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range
Classroom Teacher	$66 (N=38)	$61	$24	$24-$125	$61 (N=29)	$0	$74	$0-$225	$130 (N=25)	$120	$76	$48-$311
Instructional Aide	$27 (N=44)	$23	$21	$0-$98	$36 (N=31)	$0	$43	$0-$123	$65 (N=31)	$58	$51	$0-$221
Remedial Specialist	$24 (N=43)	$24	$15	$0-$69	--	--	--	--	$24 (N=43)	$24	$15	$0-$69
Resource Teacher	$15 (N=42)	$14	$11	$0-$49	$12 (N=32)	$0	$26	$0-$102	$28 (N=31)	$16	$33	$0-$151
Media Specialist	$5 (N=43)	$2	$6	$0-$34	$3 (N=31)	$0	$5	$0-$19	$7 (N=31)	$4	$9	$9-$34
Counselor	$2 (N=43)	$0	$2	$0-$4	$4 (N=28)	$0	$11	$0-$53	$6 (N=28)	$2	$11	$0-$53
Totals	$119 (N=38)	$108	$45	$60-$253	$93 (N=27)	$35	$103	$0-$282	$215 (N=24)	$203	$123	$65-$472

*Column entries do not necessarily add up to the "total" costs; this is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

TABLE VII-5. PROGRAM-LEVEL PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL READING AND MATH INSTRUCTION IN PILOT ELEMENTARY SCHOOLS* (CONT'D.)

Staff	Regular Math Instruction				Remedial Math Instruction				Combined Regular and Remedial Math Instruction			
	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range	Mean	Median	Standard Deviation	Interquartile Range
Classroom Teacher	$45 (N=37)	$40	$36	$10-$168	$37 (N=33)	$0	$72	$0-$260	$71 (N=27)	$49	$56	$10-$200
Instructional Aide	$23 (N=41)	$16	$20	$0-$81	$19 (N=33)	$0	$32	$0-$82	$39 (N=31)	$25	$35	$0-$118
Remedial Specialist	$8 (N=41)	$2	$12	$0-$44	$6 (N=33)	$0	$19	$0-$78	$12 (N=31)	$2	$20	$0-$96
Resource Teacher	$6 (N=42)	$4	$7	$0-$23	$3 (N=32)	$0	$7	$9-$34	$5 (N=31)	$5	$10	$0-$39
Media Specialist	$1 (N=41)	$0	$2	$0-$7	$1 (N=38)	$0	$5	$0-$19	$3 (N=36)	$0	$6	$0-$22
Counselor	$1 (N=41)	$0	$2	$0-$7	$1 (N=33)	$0	$3	$0-$18	$2 (N=31)	$0	$4	$0-$18
Totals	$77 (N=35)	$70	$48	$15-$249	$73 (N=32)	$0	$111	$0-$342	$114 (N=24)	$74	$100	$15-$414

*Column entries do not necessarily add up to the "total" costs; this is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

Within the Pilot sample, both regular reading and regular math instruction received larger amounts of staff resources than remedial instruction.

2. RESOURCE ALLOCATION DIFFERENCES BETWEEN TREATMENT AND CONTROL SCHOOLS

The following paragraphs describe the differences in patterns of resource allocation between treatment and control schools in each of the evaluation samples.

a. Basic Elementary Sample

In the Basic Elementary sample, treatment schools averaged slightly higher total per-pupil staff resource costs for regular reading instruction than control schools, as indicated by the data in Table VII-6. Classroom teachers in treatment and control schools devoted similar amounts of time to regular reading instruction; such differences as existed in total costs resulted primarily from greater use of reading specialists and instructional aides in treatment schools. Only the differential per-pupil cost for instructional aides was statistically significant ($p < .05$).

A larger though still non-significant difference in favor of treatment schools occurred in remedial reading. An average per-pupil total staff resource cost of $178 for remedial reading occurred in treatment schools, while the corresponding cost in control schools was $90. This difference of $88 per pupil occurred primarily because more time was devoted to remedial reading by classroom teachers and instructional aides in treatment schools. None of the individual remedial reading staff resource cost differences between treatment and control schools was statistically significant.

The combined per-pupil cost for regular and remedial reading in treatment schools was $330, as compared to $244 in control schools--a difference that was not statistically significant. Of the combined regular and remedial reading resource costs reported in Table VII-6, only the differential cost for instructional aides was statistically significant ($p < .05$).

In regular math instruction, Basic Elementary treatment schools allocated somewhat larger amounts of staff resources than control schools. Treatment schools had significantly higher mean resource costs than control schools for math specialists, media specialists, and school counselors ($p < .05$), but there were no significant treatment-control differences in total resource costs for regular math.

Surprisingly, control schools had higher total per-pupil resource costs (not statistically significant) for remedial math instruction than treatment schools. The difference was $25 per pupil, and was accounted for primarily by somewhat greater use of classroom teachers and math specialists in the control schools. The only statistically significant resource cost difference favoring control schools was the cost associated with school counselors ($p < .05$).

TABLE VII-6. PROGRAM-LEVEL AVERAGE PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL INSTRUCTION IN BASIC ELEMENTARY TREATMENT AND CONTROL SCHOOLS*

Staff	Regular Reading Instruction					
	Treatment Schools			Control Schools		
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
Classroom Teacher	$67 (N=31)	$58	$30	$67 (N=30)	$64	$27
Instructional Aide	$30** (N=33)	$25	$28	$19 (N=32)	$15	$22
Remedial Specialist	$28 (N=33)	$27	$16	$25 (N=32)	$22	$18
Resource Teacher	$13 (N=33)	$10	$13	$13 (N=32)	$11	$13
Media Specialist	$3 (N=33)	$2	$4	$3 (N=32)	$2	$4
Counselor	$2 (N=32)	$2	$2	$2 (N=32)	$1	$3
Totals	$123 (N=31)	$104	$56	$112 (N=30)	$104	$49
	Remedial Reading Instruction					
Classroom Teacher	$100 (N=22)	$104	$88	$69 (N=19)	$0	$81
Instructional Aide	$61 (N=27)	$64	$56	$24 (N=24)	$0	$47
Remedial Specialist	--	--	--	--	--	--
Resource Teacher	$13 (N=25)	$0	$24	$11 (N=23)	$0	$8
Media Specialist	$7 (N=25)	$0	$13	$4 (N=24)	$0	$13
Counselor	$9 (N=23)	$0	$13	$6 (N=25)	$0	$13
Totals	$178 (N=23)	$155	$141	$ 90 (N=18)	$0	$111
	Combined Regular and Remedial Reading Instruction					
Classroom Teacher	$212 (N=23)	$195	$139	$152 (N=18)	$139	$103
Instructional Aide	$96** (N=26)	$95	$69	$51 (N=23)	$35	$47
Remedial Specialist	$28 (N=33)	$27	$16	$25 (N=32)	$22	$18
Resource Teacher	$28 (N=23)	$17	$31	$21 (N=22)	$15	$19
Media Specialist	$11 (N=23)	$4	$14	$6 (N=23)	$2	$7
Counselor	$10 (N=21)	$5	$11	$8 (N=24)	$2	$13
Totals	$330 (N=22)	$313	$19	$244 (N=19)	$208	$179

*Column entries do not necessarily add up to the "total" costs; this is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

**The difference between the means is significant at the .05 level.

TABLE VII-6. PROGRAM-LEVEL AVERAGE PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL INSTRUCTION IN BASIC SECONDARY TREATMENT AND CONTROL SCHOOLS* (CONT'D.)

Staff	Regular Reading Instruction					
	Treatment Schools			Control Schools		
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
Classroom Teacher	$67 (N=31)	$58	$30	$67 (N=30)	$64	$27
Instructional Aide	$30** (N=33)	$25	$28	$19 (N=32)	$15	$22
Remedial Specialist	$28 (N=33)	$27	$16	$25 (N=32)	$22	$18
Resource Teacher	$13 (N=33)	$10	$13	$13 (N=32)	$11	$13
Media Specialist	$3 (N=33)	$2	$4	$3 (N=32)	$2	$4
Counselor	$2 (N=32)	$2	$2	$2 (N=32)	$1	$3
Totals	$123 (N=31)	$104	$56	$112 (N=30)	$104	$49
	Remedial Reading Instruction					
Classroom Teacher	$100 (N=22)	$104	$88	$69 (N=19)	$0	$81
Instructional Aide	$61 (N=27)	$64	$56	$24 (N=24)	$0	$47
Remedial Specialist	--	--	--	--	--	--
Resource Teacher	$13 (N=25)	$0	$24	$11 (N=23)	$0	$8
Media Specialist	$7 (N=25)	$0	$13	$4 (N=24)	$0	$13
Counselor	$9 (N=23)	$0	$13	$6 (N=25)	$0	$13
Totals	$178 (N=23)	$155	$141	$ 90 (N=18)	$0	$111
	Combined Regular and Remedial Reading Instruction					
Classroom Teacher	$212 (N=23)	$195	$139	$152 (N=18)	$139	$103
Instructional Aide	$96** (N=26)	$95	$69	$51 (N=23)	$35	$47
Remedial Specialist	$28 (N=33)	$27	$16	$25 (N=32)	$22	$18
Resource Teacher	$28 (N=23)	$17	$31	$21 (N=22)	$15	$19
Media Specialist	$11 (N=23)	$4	$14	$6 (N=23)	$2	$7
Counselor	$10 (N=21)	$5	$11	$8 (N=24)	$2	$13
Totals	$330 (N=22)	$313	$19	$244 (N=19)	$208	$179

*Column entries do not necessarily add up to the "total" costs; this is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

**The difference between the means is significant at the .05 level.

Also surprising was the absence among at least half of the treatment schools of a remedial math program. As the zero medians in Table VII-6 indicate, a sizeable group of Basic Elementary treatment schools did not provide any staff resources for remedial math instruction.

Overall, control schools allocated somewhat more staff resources to combined regular and remedial math instruction than treatment schools. The total difference, about $33 per pupil, was not statistically significant.

b. Basic Secondary Sample

As the data in Table VII-7 indicate, treatment schools had somewhat larger resource costs than control schools for individual staff resources and total staff resources, for both regular and remedial reading instruction. For example, treatment schools allocated $4 more than control schools for each student in regular reading, and $30 more than control schools for each student in remedial reading. However, neither of these differences was statistically significant.

Resource teachers were used in regular reading significantly more often in treatment schools than in control schools ($p < .05$). In addition, treatment schools incurred significantly higher resource costs than control schools for classroom teachers in remedial reading ($p < .05$). Otherwise, treatment and control schools appear to have allocated their staff resources for reading instruction in a very similar fashion.

As Table VII-7 shows, treatment and control schools allocated more or less equal staff resources for regular math, with the treatment schools having a total staff cost that was higher by only $6 per pupil. The only difference that was statistically significant (in favor of control schools) was in the allocation costs for school counselors ($p < .05$).

Treatment and control schools differed somewhat in resource cost allocations for remedial math, but none of the differences was statistically significant.

Treatment schools had a total per-pupil staff cost of $38, as compared to $16 in control schools, with the difference reflecting greater use of classroom teachers and instructional aides in the treatment schools.

Another interesting pattern was the absence in many treatment and control schools of remedial math programs. The zero median values in Table VII-7 indicate that no staff resources were allocated for remedial math in at least 50% of the treatment and control schools.

While the combined remedial and regular math resource cost allocations favored the treatment schools somewhat, the differences were not statistically significant.

TABLE VII-7. PROGRAM-LEVEL AVERAGE PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL INSTRUCTION IN BASIC SECONDARY TREATMENT AND CONTROL SCHOOLS*

Staff	Regular Reading Instruction					
	Treatment Schools			Control Schools		
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
Classroom Teacher	$41 (N=18)	$38	$19	$82 (N=17)	$76	$82
Instructional Aide	$13 (N=19)	$12	$10	$12 (N=18)	$7	$13
Remedial Specialist	$18 (N=19)	$16	$8	$14 (N=17)	$13	$10
Resource Teacher	$7** (N=19)	$7	$4	$5 (N=17)	$5	$2
Media Specialist	$3 (N=19)	$2	$3	$3 (N=17)	$2	$3
Counselor	$3 (N=19)	$2	$3	$2 (N=17)	$2	$3
Totals	$72 (N=18)	$72	$26	$68 (N=16)	$63	$25
	Remedial Reading Instruction					
Classroom Teacher	$82** (N=17)	$76	$82	$55 (N=15)	$45	$71
Instructional Aide	$28 (N=18)	$6	$42	$26 (N=16)	$0	$43
Remedial Specialist	--	--	--	--	--	--
Resource Teacher	6 (N=19)	$0	$10	$9 (N=16)	$0	$18
Media Specialist	$7 (N=19)	$0	$14	$2 (N=16)	$0	$4
Counselor	$7 (N=19)	$0	$14	$6 (N=16)	$0	$9
Totals	$111 (N=16)	$88	$116	$81 (N=14)	$65	$107
	Combined Regular and Remedial Reading Instruction					
Classroom Teacher	$134 (N=15)	$117	$79	$104 (N=15)	$104	$74
Instructional Aide	$45 (N=16)	$35	$38	$43 (N=14)	$23	$48
Remedial Specialist	$18 (N=19)	$16	$8	$14 (N=17)	$13	$10
Resource Teacher	$14 (N=17)	$11	$10	$16 (N=13)	$7	$20
Media Specialist	$11 (N=17)	$5	$14	$5 (N=13)	$3	$5
Counselor	$10 (N=17)	$5	$14	$9 (N=13)	$4	$10
Totals	$201 (N=14)	$187	$107	$177 (N=11)	$143	$117

*Column entries do not necessarily add up to the "total" costs; this is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

**The difference between the means is significant at the .05 level.

TABLE VII-7. PROGRAM-LEVEL AVERAGE PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL INSTRUCTION IN BASIC SECONDARY TREATMENT AND CONTROL SCHOOLS* (CONT'D.)

Staff	Regular Math Instruction					
	Treatment Schools			Control Schools		
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
Classroom Teacher	$41 (N=13)	$33	$28	$38 (N=15)	$33	$22
Instructional Aide	$8 (N=21)	$2	$12	$8 (N=19)	$5	$10
Remedial Specialist	$8 (N=21	$5	$6	$5 (N=19)	$4	$6
Resource Teacher	$8 (N=21)	$7	$7	$5 (N=19)	$5	$4
Media Specialist	$2 (N=21)	$1	$2	$2 (N=18)	$0	$2
Counselor	$1** (N=21)	$0	$2	$2 (N=19)	$0	$3
Totals	$59 (N=13)	$53	$36	$53 (N=15)	$48	$27
	Remedial Math Instruction					
Classroom Teacher	$17 (N=15)	$0	$66	$14 (N=16)	$0	$55
Instructional Aide	$17 (N=19)	$0	$42	$1 (N=18)	$0	$2
Remedial Specialist	$2 (N=17)	$0	$4	$2 (N=18)	$0	$7
Resource Teacher	$0 (N=17)	$0	$2	$5 (N=18)	$0	$14
Media Specialist	$1 (N=17)	$0	$2	$0 (N=18)	$0	$0
Counselor	$0 (N=17)	$0	$0	$1 (N=18)	$0	$3
Totals	$38 (N=15)	$0	$148	$16 (N=16)	$0	$63
	Combined Regular and Remedial Math Instruction					
Classroom Teacher	$101 (N=10)	$48	$172	$54 (N=12)	$28	$77
Instructional Aide	$25 (N=19)	$5	$44	$5 (N=17)	$5	$8
Remedial Specialist	$8 (N=17)	$6	$7	$7 (N=17)	$4	$9
Resource Teacher	$8 (N=17)	$7	$7	$10 (N=17)	$6	$14
Media Specialist	$2 (N=17)	$1	$3	$2 (N=16)	$0	$2
Counselor	$1 (N=17)	$0	$2	$3 (N=17)	$1	$5
Totals	$119 (N=10)	$72	$176	$69 (N=12)	$39	$87

*Column entries do not necessarily add up to the "total" costs; this is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

**The difference between the means is significant at the .05 level.

c. Pilot Sample

Within regular reading instruction, Pilot treatment and control schools differed minimally in total per-pupil resource costs (see Table VII-8). On the average, treatment schools allocated only about $5 per pupil more for total staff resources than control schools. However, treatment schools did allocate significantly more instructional aide and resource teacher costs to regular reading than control schools ($p < .05$).

Treatment schools allocated, on the average, about $64 more per pupil for remedial reading than did control schools. The difference resulted primarily from the greater use of classroom teachers and instructional aides in treatment schools. However, none of the treatment-control differences was statistically significant.

Overall, treatment schools allocated significantly more total staff resources than control schools to the combined regular and remedial reading efforts ($p < .05$). Treatment schools averaged about $252 per pupil for combined reading instruction, while control schools averaged $147 per pupil. This difference was accounted for by somewhat greater time devoted to reading by classroom teachers in the treatment schools, and substantially more time allocated to reading instruction by aides.

Significantly more total staff resource costs for regular math instruction were incurred by treatment schools than by control schools ($p < .05$). Treatment schools spent about $34 more per pupil for regular math instruction than control schools. This difference resulted principally from about twice as much time devoted to regular math instruction by instructional aides, remedial specialists and resource teachers in treatment schools as in control schools. The differences in resource costs for instructional aides and resource teachers were statistically significant ($p < .05$).

Treatment-control differences in resource costs associated with remedial math in the Pilot schools were very similar to those found in the Basic Elementary schools. For example, control schools, on the average, incurred greater total staff resource costs than treatment schools. The difference, about $17 per pupil, was not statistically significant.

As in the Basic Elementary sample, at least 50% of the treatment and control schools apparently did not provide any staff resources for remedial math, as demonstrated by the zero medians in Table VII-8.

Overall, Pilot treatment schools allocated significantly more total staff resources to reading and math instruction than control schools. No such significant overall difference was found in either of the Basic samples.

3. SUMMARY

The analyses of resource allocation data presented in this chapter have focused on examining the differential use of instructional staff time in regular and remedial reading and mathematics instruction. While these

TABLE VII-8. PROGRAM-LEVEL AVERAGE PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL INSTRUCTION IN PILOT ELEMENTARY TREATMENT AND CONTROL SCHOOLS*

Staff	Regular Reading Instruction					
	Treatment Schools			Control Schools		
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
Classroom Teacher	$63 (N=17)	$60	$23	$71 (N=17)	$62	$26
Instructional Aide	$33** (N=20)	$28	$21	$21 (N=20)	$17	$20
Remedial Specialist	$25 (N=19)	$24	$16	$24 (N=20)	$20	$15
Resource Teacher	$17** (N=18)	$16	$11	$11 (N=20)	$10	$11
Media Specialist	$5 (N=19)	$1	$8	$4 (N=20)	$2	$4
Counselor	$1 (N=19)	$0	$2	$2 (N=20)	$1	$2
Totals	$121 (N=17)	$110	$42	$116 (N=17)	$100	$52
	Remedial Reading Instruction					
Classroom Teacher	$68 (N=11)	$70	$70	$41 (N=15)	$0	$69
Instructional Aide	$41 (N=13)	$23	$48	$25 (N=15)	$0	$41
Remedial Specialist	--	--	--	--	--	--
Resource Teacher	$12 (N=14)	$0	$31	$5 (N=14)	$0	$9
Media Specialist	$5 (N=12)	$0	$5	$2 (N=15)	$0	$5
Counselor	$6 (N=12)	$0	$15	$2 (N=13)	$0	$5
Totals	$114 (N=11)	$130	$106	$50 (N=13)	$0	$86
	Combined Regular and Remedial Reading Instruction					
Classroom Teacher	$139 (N=10)	$182	$77	$103 (N=12)	$82	$61
Instructional Aide	$75 (N=13)	$58	$59	$48 (N=15)	$33	$41
Remedial Specialist	$25 (N=19)	$24	$16	$24 (N=20)	$20	$15
Resource Teacher	$31 (N=13)	$16	$41	$17 (N=14)	$14	$14
Media Specialist	$7 (N=12)	$2	$10	$6 (N=15)	$4	$6
Counselor	$7 (N=12)	$2	$15	$4 (N=13)	$1	$6
Totals	$252** (N=10)	$309	$137	$147 (N=11)	$119	$70

*Column entries do not necessarily add up to the "total" costs. This is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

**The difference between the means is significant at the .05 level.

TABLE VII-8. PROGRAM-LEVEL AVERAGE PER-PUPIL STAFF RESOURCE COSTS FOR REGULAR AND REMEDIAL INSTRUCTION IN PILOT ELEMENTARY TREATMENT AND CONTROL SCHOOLS* (CONT'D.)

Staff	Regular Math Instruction					
	Treatment Schools			Control Schools		
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
Classroom Teacher	$48 (N=17)	$34	$41	$38 (N=17)	$33	$29
Instructional Aide	$32** (N=18)	$26	$23	$15 (N=19)	$10	$15
Remedial Specialist	$10 (N=18)	$5	$13	$5 (N=19)	$2	$10
Resource Teacher	$8** (N=19)	$4	$8	$3 (N=19)	$2	$4
Media Specialist	$1 (N=18)	$0	$2	$1 (N=19)	$0	$2
Counselor	$1 (N=18)	$0	$2	$1 (N=19)	$0	$2
Totals	$92** (N=16)	$84	$57	$58 (N=16)	$56	$35
	Remedial Math Instruction					
Classroom Teacher	$17 (N=12)	$0	$44	$36 (N=17)	$0	$74
Instructional Aide	$11 (N=13)	$0	$26	$16 (N=16)	$0	$31
Remedial Specialist	$8 (N=13)	$0	$22	$0 (N=16)	$0	$1
Resource Teacher	$1 (N=17)	$0	$4	$2 (N=16)	$0	$5
Media Specialist	$1 (N=13)	$0	$5	$0 (N=16)	$0	$0
Counselor	$0 (N=13)	$0	$0	$0 (N=16)	$0	$2
Totals	$37 (N=12)	$0	$91	$54 (N=16)	$0	$104
	Combined Regular and Remedial Math Instruction					
Classroom Teacher	$75 (N=10)	$70	$57	$57 (N=14)	$46	$48
Instructional Aide	$37 (N=12)	$26	$29	$29 (N=15)	$15	$31
Remedial Specialist	$12 (N=12)	$5	$15	$6 (N=15)	$2	$11
Resource Teacher	$10 (N=13)	$6	$8	$6 (N=15)	$5	$6
Media Specialist	$2 (N=16)	$0	$5	$1 (N=16)	$0	$2
Counselor	$1 (N=12)	$0	$2	$1 (N=15)	$0	$3
Totals	$115** (N=9)	$89	$83	$84 (N=12)	$65	$72

*Column entries do not necessarily add up to the "total" costs. This is because the various calculations used in different columns were based on different sets of variables, and the sets of schools having the required data were different for different variables.

**The difference between the means is significant at the .05 level.

analyses have sought to attach average costs to various components of instruction for the purpose of describing the relative costs of instructional programs, the differences in costs presented here reflect differences primarily in the allocation of instructional time rather than actual expenditure differences (see Chapter V). In the case of regular and remedial classroom teachers, resource costs are a function of both the allocation of instructional time and the experience and educational background of the teacher. Thus, for the results concerning teachers, higher costs can reflect more time, higher teacher quality (to the extent that quality is related to education and experience), or both. Some of the results of these analyses across the various evaluation samples are summarized below.

Considerably greater resource allocations were made to reading instruction than to math instruction across all three samples of schools. In general, per-pupil resource costs were about twice as large for reading as for math. Also, elementary schools in both samples tended to devote more resources than secondary schools to reading and math instruction.

Considerably greater emphasis was placed on remedial reading instruction in Basic Elementary schools than in Pilot schools. While all of the Basic Elementary schools allocated staff resources for remedial reading, only half of the Pilot schools allocated staff resources for that purpose. The two elementary samples placed approximately equal emphasis on regular reading instruction.

The Basic Elementary and Pilot samples placed equal emphasis on regular math instruction (i.e., had similar per-pupil resource costs). Only about half of the schools in each of the three samples provided staff resources for remedial math instruction. Across all three evaluation samples, most services in math were considered to be regular instructional services, and the cost of these services represented the largest component of the total math resource costs.

For the Basic Elementary and Secondary samples, no statistically significant treatment-control differences were found in the total per-pupil resource costs for either reading or math instruction. Treatment schools did, however, allocate somewhat greater resources than control schools to their instructional programs.

In the Pilot Elementary sample, treatment schools allocated significantly larger total amounts of instructional resources than control schools to sample students in reading and math.

The results of the analyses presented in this chapter are somewhat at odds with the analyses of expenditure data presented in Chapter V. In the earlier chapter, no significant differences in expenditures in reading and math instruction were found in the elementary samples, while significant differences did occur in the secondary sample. In the present chapter, significant differences were found only at the Pilot Elementary level. It should be remembered, however, that the results presented in Chapter V represent the analyses of budgetary data related to supplemental expenditures only. The results in this chapter are based on all staff resources regardless of funding source (i.e., both regular and supplemental funds), and reflect the allocation of time more than the allocation of actual dollars.

CHAPTER VIII

STATUS OF MINORITY-GROUP ISOLATION IN ESAA DISTRICTS

One of the major objectives of the ESAA program is to encourage the voluntary elimination, reduction, or prevention of minority-group isolation (MGI) in elementary and secondary schools with substantial proportions of minority-group students. This chapter focuses on evidence concerning the degree of MGI in Year Two ESAA districts; it examines the status of MGI at the time of ESAA awards, compares MGI in ESAA and non-ESAA districts, and traces changes in MGI over a period of several years. Further, it seeks to determine whether different levels of MGI were associated with certain demographic characteristics of the districts, or with certain desegregation-related district policies.

Two points should be noted regarding this chapter's content and organization. First, all descriptions of desegregation plans and activities focus on the district level of operation and policy formation; this contrasts with Chapter VI, which was concerned with school-level desegregation activities. Second, some types of MGI-related data were available for the entire Year Two ESAA award universe, while certain other types were available only for the evaluation sample districts. For this reason, the chapter is divided into two sections: Section A deals with MGI-related issues involving the ESAA award universe districts, and Section B examines data specific to the Year Two evaluation sample.

A. MINORITY-GROUP ISOLATION IN AWARD UNIVERSE DISTRICTS

This section addresses four basic questions concerning the ESAA award universe:

- Were there systematic differences in the initial (pre-ESAA) MGI status of districts receiving and not receiving ESAA grants?
- What was the prior history of change in MGI for the ESAA and non-ESAA districts?
- What ESAA district characteristics were associated with differences in 1974 desegregation status?
- What were some of the characteristics of ESAA-funded districts that reduced MGI between 1972 and 1974?

Before attempting to answer these questions, however, it is necessary to consider the types and sources of relevant data that were available, and to define certain key terms used in the discussion.

1. SOURCE OF DATA

The primary source of minority-group isolation data for the ESAA award universe districts was survey data collected by the Office of Civil Rights (OCR) in the fall of the following school years: 1968-69, 1972-73, 1973-74, and 1974-75. (In this chapter the OCR data collected for these school years are referred to in terms of fall 1968, fall 1972, fall 1973, and fall 1974, respectively.) In general, three elements of OCR data were used: district enrollment size, enrollment by racial/ethnic group, and number of schools in the district.

There are important differences in the usefulness of the OCR data collected in different years, with respect to the present evaluation. The fall 1968 and fall 1972 surveys included all districts in the ESAA evaluation, and almost half the total districts in the country. Sampling rates for those years were 100% of all districts having enrollments of 3,000 or more; 75% of districts with enrollments between 1,200 and 2,999; 50% of districts with enrollments between 600 and 1,199; 25% of districts having between 300 and 599 students; and no districts with enrollments under 300. These samples were then augmented by the addition of small numbers of districts having special interest to OCR (because they were in the process of desegregating), regardless of enrollment size. Overall, then, the fall 1968 and fall 1972 OCR samples tended to overrepresent larger districts eliminating racially dual school systems.

The fall 1973 OCR survey still included essentially all of the ESAA award universe districts, but only about 15% of the total districts in the country. Furthermore, the survey sample for that year can hardly be reported as representative of districts nationally, even aside from an emphasis on larger districts, as it was limited almost entirely to districts having certain racial/ethnic proportions, being involved in voluntary or court-order desegregation, or having other characteristics of special interest to OCR. Thus, the fall 1973 OCR survey tape provides a valuable baseline of data on the ESAA award districts, but not on school districts in general.

Even more severe constraints apply to the fall 1974 OCR survey, which was again limited to a small percentage of total districts in the country, selected because of their particular interest to OCR. This sample did not include 23% of the ESAA award districts. Furthermore, data from the fall 1973 OCR tape indicate that ESAA award districts included in the fall 1974 survey were different in some respects from award districts not included. For example, the mean enrollments of ESAA Pilot and Basic award districts included in the survey were 18,102 and 15,147, respectively, whereas the corresponding enrollments for districts not included were 2,416 and 2,794. Mean percentages of minority students for surveyed districts and non-surveyed districts were similar (63% vs. 62%, respectively, for Pilot, 43% vs. 44% for Basic); however, percentages of specific minority groups differed appreciably. Mean percentages of Black students in surveyed Pilot and Basic districts were 53% and 36%; the corresponding figures for non-surveyed districts were 25% and 15%. By contrast, the mean percentages of Spanish students in surveyed districts (8% and 6%, respectively, in Pilot and Basic districts) were smaller than those in non-surveyed districts (32% and 20%).

Overall, it appears that the ESAA districts included in the fall 1974 OCR survey overrepresented larger districts, districts with larger proportions of Black students, and districts with smaller proportions of Spanish students, relative to the entire ESAA award universe. These sampling constraints suggest that the data presented below, relative to the desegregation status of ESAA districts in fall 1974, should be interpreted with considerable caution.

One further limitation, mentioned previously, pertains to the fact that districts in several large cities, such as Los Angeles and Boston, were not in the Year Two ESAA award universe. Furthermore, because of difficulties in administering tests at the necessary time, two large east-coast cities, though part of the award universe, were not included in the Year Two ESAA samples. Thus, the generalizability of desegregation-related evaluation findings to the very large districts, and particularly to eastern seaboard cities with large enrollments, is somewhat limited. Nevertheless, both the award universe and the samples did include a number of quite large districts in some parts of the country.

2. DEFINITION OF TERMS

For purposes of this evaluation, desegregation indices were used as inverse measures of MGI. That is, an increase in a district's desegregation index represented a decrease in minority-group isolation, and was therefore considered desirable. Two types of desegregation indices used in this chapter are defined below.

a. District Desegregation Index (D.I.)

The OCR district desegregation index attempts to measure the extent of racial balance between schools within a district; the index ranges from 0.0 (a totally segregated environment) to 1.0 (a uniform racial distribution). It compares the racial balance of each school in the district with the overall racial composition of the district. Racial balance, insofar as it can be achieved within a particular district's student population, is viewed as the optimal situation. The farther the racial balance of each school is from the overall racial distribution of the district, the lower the index value.

The formula for calculating the desegregation index is as follows:

$$\text{D.I.} = \frac{\sum_{j=1}^{n} \left[\frac{a_j \times b_j}{a_j + b_j}\right]}{\frac{A_t \times B_t}{A_t + B_t}}$$

where: a_j = number of minority students in school j

b_j = number of non-minority students in school j

A_t = total number of minority students in district

B_t = total number of non-minority students in district

j = school indicator

n = number of schools in the district

b. Black-White Desegregation Index

There is a second standardized index that measures the amount of contact between any two racial/ethnic groups of interest.[1] The second racial balance index is included primarily because additional data, based on the use of this index, have been reported for a representative sample of school districts across the nation with respect to Black-White segregation in fall 1968, fall 1970, and fall 1972.[2] The data allow convenient comparisons of the MGI status for ESAA award districts and other school districts across the nation that are not funded by ESAA.

The index is calculated by the following formula:

$$R_{bw} = \frac{P_w - S_{bw}}{P_w}$$

where: P_w = proportion White in the district

and $S_{bw} = \frac{\sum_K n_{Kb} P_{Kw}}{\sum_K n_{Kb}}$ with:

K = school indicator

n_{Kb} = number of Black students in school K

P_{Kw} = proportion of White students in school K

When this formula is applied, the result is actually a measure of segregation rather than desegregation. Therefore, to obtain a Black-White Desegregation

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[1] Coleman, James S., Sara D. Kelly, and John A. Moore. Trends in School Segregation, 1968-73. The Urban Institute, Washington, D.C., 1975.

[2] Ibid.

Index, the R_{bw} index values calculated by the formula were subtracted from 1.0. The resulting Black-White Desegregation Index values are identical to those obtained from the desegregation index previously described, in cases where there are only two racial/ethnic groups in a district.

It should be stressed that both indices of racial balance have certain limitations. First, the index values give no indication of the quality of interracial interaction within a district. They do not reflect any of the dynamic interactions within a district, nor do they reveal underlying motivations or attitudes concerning desegregation and integration. Second, the formulas for calculating the desegregation indices make it easier for districts with extreme minority distributions (e.g., 90% White or 90% Black) to have high index values than those districts with moderate percentages of minority students (e.g., 40%-60%). Thus, many of the Year Two Pilot districts have high desegregation index values. Finally, it is possible for any given index score to represent several substantially different desegregation situations. The results reported below should be read and interpreted with these methodological limitations in mind.

3. COMPARISON OF PRE-ESAA MINORITY-GROUP ISOLATION IN ESAA-FUNDED AND NON-ESAA DISTRICTS

The question addressed here is whether there were systematic differences between the initial (pre-ESAA) desegregation status of districts receiving ESAA grants and those of the total sample of districts surveyed by OCR. For example, did districts receiving grants tend to have less minority-group isolation? This question can best be answered by examining data from the fall 1972 OCR survey, as that was the last year in which the national survey included a reasonably broad spectrum of districts. Furthermore, the fall 1972 survey was the last one completed prior to the start of the ESAA programs, and thus provides a useful picture of the context in which the ESAA award process was initiated.

As pointed out earlier (Section 2b), data based on the Black-White Desegregation Index were available in fall 1972 for the total set of OCR-surveyed districts. The fall 1972 OCR data were also used to calculate mean values of the Black-White Desegregation Index for the subsets of districts receiving ESAA Pilot and Basic awards in Year Two. For the total OCR sample, the mean Black-White Desegregation Index value was 0.63. Corresponding values for the Year Two Pilot award districts and the Year Two Basic award districts were 0.90 and 0.85, respectively. Thus, it appears that ESAA grants were given to districts having, on the average, higher index values (less minority-group isolation) than the total set of districts surveyed by OCR. Furthermore, since ESAA-funded districts constituted only about seven percent of all districts in the OCR survey, it is probably reasonable to conclude that the Black-White Desegregation Index values for ESAA districts were also considerably higher than those for the subgroup of OCR-surveyed districts that did not receive ESAA funds. This finding should be interpreted with caution, however, both because the OCR sample was not a random sample of the total universe of districts, and because the index used in this comparison is limited to Black-White desegregation.

4. CHANGES IN MINORITY-GROUP ISOLATION BETWEEN FALL 1968 AND FALL 1974 FOR YEAR TWO ESAA AWARD DISTRICTS

This section examines the history of change in MGI for districts receiving ESAA Basic and Pilot awards in Year Two. The amount of change that occurred in these districts both before and after the start of ESAA was of interest. To investigate these issues, district desegregation index (D.I.) values were examined, using data from the OCR surveys conducted in the fall of 1968, 1972, 1973, and 1974. As previously noted, the first three of those surveys included almost all of the ESAA award districts, while the fall 1974 survey contained about 77% of those districts.

Table VIII-1 shows the mean values and standard deviations of D.I. values for districts in each ESAA award universe. It is readily apparent that both universes achieved large reductions in minority-group isolation (i.e., increased their D.I. values) between fall 1968 and fall 1974. Equally apparent is the fact that virtually all of this improvement had occurred prior to the start of the ESAA program, as evidenced by the values for fall 1972. This latter finding is not surprising, however, since it has already been noted that fall 1972 Black-White Desegregation Index values were high for both Year Two ESAA award universes. Overall, it is clear that ESAA awards were given to districts that had had fairly pronounced minority-group isolation in fall 1968, but that had greatly reduced that isolation by the start of the ESAA program.

TABLE VIII-1. MEAN OCR D.I. VALUES IN FALL OF 1968, 1972, 1973, AND 1974 FOR BASIC AND PILOT ESAA AWARD DISTRICTS

ESAA Award Districts	Mean OCR Desegregation Index Value					
	1968			1972		
	Mean	S.D.	N	Mean	S.D.	N
Pilot Award Districts (N = 133)	.41	.34	112	.86	.20	120
Basic Award Districts (N = 555)	.53	.33	467	.90	.14	496
	1973			1974		
Pilot Award Districts (N = 133)	.87	.18	126	.86	.18	108
Basic Award Districts (N = 555)	.91	.13	505	.91	.13	434

5. RELATIONSHIPS BETWEEN ESAA DISTRICT CHARACTERISTICS AND FALL 1974 DESEGREGATION STATUS

Demographic characteristics distinguishing Year Two Basic and Pilot districts with varying values of the desegregation index (D.I.) were identified through the use of stepwise multiple regression. This technique was considered the most appropriate analytic tool because of the presumed interrelationships among district characteristics. Results described here are primarily descriptive; although some possible explanations are offered for associations found among variables, the analyses performed do not provide direct evidence of causal relationships.

The analyses used the following demographic variables as possible predictors of MGI status: 1) number of schools in the district, 2) number of years the district had been desegregating, 3) total district enrollment, 4) percentage of minority students in the district, and 5) total amount of ESAA funding available in the district. The regression of these variables of the fall 1974 district D.I. value was performed separately for the Year Two Pilot and Basic award universe districts.

The number of schools in the district and the percentage of minority students combined to account for slightly over 16% of the variance in the fall 1974 D.I. status for the Pilot award universe; the number of schools was the more important component in this relationship, accounting by itself for ten percent of the variance in D.I. The multiple correlation was statistically significant ($R = .41$, two-tailed, $p < .05$), with the direction of the associations indicating that greater racial balance (i.e., high D.I. values) occurred in districts with fewer schools and lower percentages of minority students.

Similar results were found for the Basic award universe. A statistically significant multiple correlation coefficient ($R = .47$, two-tailed, $p < .01$) was achieved by including the number of schools in the district and the district percentage of minority students; again, high D.I. values tended to occur in districts with fewer schools and smaller percentages of minority students. The number of schools in the district accounted for almost 21% of the variance in D.I. status, and was clearly the single most important characteristic.

These relationships, though consistent across the two samples, were not impressively strong, as they left approximately 80% of the variance in D.I. unaccounted for. The association of high D.I. with small numbers of schools probably reflects the fact that, in a smaller community with fewer schools, any given school is more likely to serve a geographic area cutting across different racial/ethnic neighborhoods. In the limiting condition, where a district has only one junior high or high school, that school must, of course, contain all students of the appropriate age range regardless of race.

The association between higher D.I. values and lower percentages of minority students seems reasonable in the Basic award universe. When the percentage of such students is quite low (e.g., below 20% or 30%), it is relatively simple, both logistically and politically, to modify school compositions as needed to achieve racial balance. Such modification becomes considerably more difficult as the percentage of minority students approaches 50%.

The negative partial correlation between D.I. and minority percentage in the Pilot award districts is more difficult to explain. A "high" minority percentage for Pilot districts was often 80% or more; in that range, as noted earlier, D.I. values tend to run higher simply as an artifact of the formula used in calculating D.I. In any case, the relationship between D.I. and minority percentage was a weak one, accounting for less than three percent of the variance in D.I.

6. CHARACTERISTICS OF ESAA-FUNDED DISTRICTS REDUCING MINORITY-GROUP ISOLATION BETWEEN FALL 1972 AND FALL 1974

As noted above, most ESAA districts had attained high D.I. values by the fall of 1972, and maintained about the same levels by the beginning of the 1973-74 and 1974-75 school years. However, a few districts did make gains in D.I. values during the period between fall 1972 and fall 1974, and it is of some interest to examine the characteristics of those districts.

All Year Two ESAA districts were investigated for gains in D.I. between fall 1973 and fall 1974. (The amount of desegregation occurring during ESAA Year Two (1974-75) was calculated by taking the difference between the fall 1973 and fall 1974 D.I. values for each district.) Fourteen districts with positive gains during this period were identified. D.I. gains between fall 1972 and fall 1974 were also investigated for districts in the award universe for both years of ESAA operation. (Again, the amount of desegregation occurring during ESAA Year One (1973-74) and Two (1974-75) was calculated by taking the difference between the fall 1972 and fall 1974 D.I. values for each district.) It was found that 35 districts made positive gains in D.I. values during the two years of ESAA funding. The two groups of districts are discussed separately below.

a. Year Two ESAA Districts Achieving Reductions in Minority-Group Isolation Between Fall 1973 and Fall 1974

The gains in D.I. value between fall 1973 and fall 1974 for the Year Two ESAA districts ranged from .1 to .3, with ten districts concentrated at the .1 level, three districts at the .2 level, and one district at the .3 level. Tables VIII-2 through VIII-4 describe the characteristics of these districts with respect to fall 1974 D.I. status, HEW region, base year (i.e., year prior to start of desegregation), number of schools, enrollment figures (1973-74 and 1974-75), and funding status.

No clear pattern of characteristics was found for the Year Two ESAA districts making positive gains in D.I. between fall 1973 and fall 1974, as those districts varied widely in their fall 1974 D.I. status, number of schools, percentage of minority students, and enrollment size. Twenty-nine percent of the districts were located in the Central Midwest, while 43% were located in the Southeast. The majority of the 14 districts (64%) had recent base years. The enrollment figures for 1973 and 1974 indicated that there were no big shifts in total enrollment size or in percentage and number of minority students within these districts. Thus it appears that these districts were

TABLE VIII-2. RELATIONSHIPS OF DISTRICT D.I. GAIN IN 1974 TO 1974 D.I. STATUS, HEW REGION, BASE YEAR, NUMBER OF SCHOOLS IN DISTRICT, AND PERCENTAGE OF MINORITY STUDENTS IN DISTRICT IN FALL 1974

Gain in District D.I. Value (1974 D.I.-1973 D.I.)	Number of Districts	District 1974 D.I. Status	HEW Region	Base Year	Number of Schools in District	Percentage of Minority Students in District in Fall 1974
.1	10	1-.9695	Central Midwest	1973	20	21.8
		2-.9630	West South Central	1973	16	89.6
		3-.9460	Southeast	1964	11	98.2
		4-.8760	Central Midwest	1972	122	19.1
		5-.8541	Central	1972	9	26.6
		6-.8184	Mountain	1969	123	45.6
		7-.7690	Southeast	1968	11	37.6
		8-.7315	Southeast	1965	77	19.8
		9-.6764	Central	1972	122	43.2
		10-.5884	Southeast	1969	144	84.9
.2	3	1-.8727	New England	1973	51	37.6
		2-.7396	Southeast	1970	47	48.1
		3-.6886	Southeast	1961	50	54.3
.3	1	.9906	Border	1963	16	35.0

TABLE VIII-3. RELATIONSHIPS OF DISTRICT D.I. GAIN IN 1974 TO DISTRICT ENROLLMENT FIGURES FOR FALL 1973 AND FALL 1974

Gain in District D.I. Value (1974 D.I.-1973 D.I.)	Number of Districts	District	Total District Enrollment		Total Number of Minority Students	
			1973-74	1974-75	1973-74	1974-75
.1	10	1	9,914	9,611	2,078	2,093
		2	9,201	9,740	8,077	8,729
		3	3,885	3,639	3,778	3,574
		4	58,833	56,161	10,428	10,722
		5	4,131	4,157	1,090	1,107
		6	87,620	79,670	37,728	36,359
		7	6,257	6,204	2,395	2,336
		8	53,226	50,702	12,802	10,046
		9	91,714	87,973	38,425	38,003
		10	88,125	85,298	72,128	72,414
.2	3	1	29,628	28,767	10,408	10,821
		2	36,293	35,275	17,076	16,950
		3	21,646	23,985	12,685	13,013
.3	1	1	9,471	9,067	3,169	3,176

TABLE VIII-4. RELATIONSHIPS OF DISTRICT D.I. GAINS IN 1974 TO ESAA PROGRAM DESCRIPTION VARIABLES

Gain in District D.I. Value (1974 D.I.-1973 D.I.)	Number of Districts	Amount of ESAA Funding in 1974	Type of ESAA Funding in 1974		Years Funded by ESAA	
			Basic	Pilot	1	2
		District:				
.1	10	1. $ 313,206	X	-	X	-
		2. $ 160,829	X	-	X	-
		3. $ 194,345	-	X	X	-
		4. $1,092,194	X	-	-	X
		5. $ 475,800	X	-	-	X
		6. $ 907,757	X	X	X	-
		7. $ 95,736	X	-	-	X
		8. $ 480,162	X	-	-	X
		9. $1,330,650	X	-	X	-
		10. $1,205,208	X	X	-	X
.2	3	1. $ 628,678	X	-	X	-
		2. $ 323,727	X	X	-	X
		3. $1,111,291	X	X	-	X
.3	1	$ 277,765	X	-	-	X

rebalancing within the district for the most part, rather than drawing extensive new school boundaries or transporting students from other areas. Most districts received Basic funds only, but four districts received both Basic and Pilot funds. Eight of the 14 districts were funded by ESAA for two years.

Although there were few substantial increases in D.I. value during Year Two, probably because of the high initial values, there was also little evidence of any re-segregation in the ESAA districts. By fall 1974, 96% of the Year Two ESAA districts remained at the same D.I. level as in fall 1973, 3% made positive changes in D.I. value (as described above), and the remaining 1% (five districts) made slight negative changes in D.I. status (-.1). These five districts were located in HEW regions IV and VI, and generally had small enrollment figures (less than 6,000 students) and high percentages of minority students (87%-96%).

b. Longitudinal ESAA Districts Achieving Reductions in Minority-Group Isolation Between Fall 1972 and Fall 1974

The gains in D.I. values between fall 1972 and fall 1974 for the longitudinal ESAA districts (those funded for both years) ranged from .1 to .4, with twenty-three districts concentrated at the .1 level, eight districts at the .2 level, two districts at the .3 level, and two districts at the .4 level. Of the 35 districts, 34% were located in HEW region IV and 40% in HEW region VI. Approximately 57% of these districts had 30 or fewer schools and 40% had 10,000 students or less. As previously described in Section 5, a small number of schools in the district was generally associated with high D.I. values for ESAA award districts. Thus, it is not too surprising to discover that over half of the ESAA districts improving their D.I. values during two years of ESAA funding have small numbers of schools. Both the percentage of minority students (15%-98%, $\overline{X}$ = 46%) and the fall 1974 D.I. status (.3132-.9941, $\overline{X}$ = .8090) varied widely, as did recency of desegregation. The majority of these districts were funded by Basic grants only, while 26% were funded by both Basic and Pilot grants.

c. Summary

Few common characteristics were identified for ESAA districts reducing MGI between either fall 1973 and fall 1974 or fall 1972 and fall 1974. Approximately one-third of the districts in each group were located in the Southeast. In addition, 40% of these districts had 10,000 students or less and rather small numbers of schools (10-30). However, percentage of minority students, recency of desegregation, and fall 1974 D.I. status varied widely within each group of districts that had reduced MGI.

B. MINORITY-GROUP ISOLATION IN YEAR TWO EVALUATION SAMPLE DISTRICTS

This section focuses on two major issues related to the Year Two evaluation sample districts. First, descriptions are presented of several aspects of the desegregation activities within the evaluation sample districts.

Community and school attitudes toward desegregation, general desegregation policy guidelines, and major elements comprising the district desegregation plans are discussed for both Basic and Pilot evaluation districts. Second, the types of desegregation plans and policies used most frequently in Basic and Pilot districts reducing MGI are explored.

1. SOURCES OF DATA

Two primary sources of MGI data were available for the Year Two evaluation sample districts: (1) survey data collected by the Office of Civil Rights (OCR) in the fall of 1968, 1972, and 1974; and (2) questionnaire responses from the district superintendents in the 1974-75 ESAA evaluation sample. Only evaluation districts with both types of data were included in the analyses. This data restriction reduced the sample of Year Two ESAA evaluation districts to 61, of which 31 were funded by Basic and 30 by Pilot.

The OCR data were used primarily for descriptions of district characteristics such as fall 1974 MGI status, district enrollment size, and percentage of minority students. Data collected from the district superintendents provided descriptions of community and school attitudes toward desegregation, general desegregation policy guidelines, frequency of incidents related to desegregation, and major elements comprising the district desegregation plans. It should be remembered that these latter descriptions are based on the responses of district superintendents only. Therefore, the data reflect their opinions and interpretations of district policy, and may not necessarily provide objective pictures of what actually occurred in the districts.

2. GENERALIZABILITY OF EVALUATION SAMPLE RESULTS

Before the results for the evaluation sample districts are discussed, the generalizability of the evaluation sample results should be addressed. As shown in Chapter II, the Basic and Pilot evaluation sample districts were reasonably representative of their award universes with respect to district percentage of minority students, number of years desegregating, and HEW region. However, both the Basic and Pilot evaluation sample districts had larger total enrollment figures and lower D.I. values than the majority of districts included in the two award universe groups. These differences were largely the result of the criteria applied in the selection of the evaluation sample districts.

The evaluation samples had relatively few non-Black minority students. This resulted partly from the fact that the ESAA award universe itself did not have large numbers of such students and partly because one large district with a large percentage of Spanish-speaking students had to be omitted from the sample, due to problems encountered in obtaining release of its test and questionnaire data. Therefore, the results discussed below apply primarily to Black/White desegregation.

The constraints previously discussed for the Basic and Pilot award universes with respect to incomplete fall 1974 OCR data (Section A.1) also apply to the evaluation sample districts. Approximately 13% of the Year Two evaluation sample districts were not included in the OCR data for fall 1974.

3. DESEGREGATION ATTITUDES, POLICIES, AND PLANS OF SAMPLE ESAA DISTRICTS

a. Desegregation Attitudes of Community and School Personnel, as Perceived by Superintendents

Attitudes toward desegregation were assessed in two ways. First, superintendents of sample districts were asked to indicate their own feelings about certain educational practices related to desegregation. The following items were included:

> Which one of the following policies on neighborhood elementary schools represents the best educational practice, in your estimation?
>
> a. Neighborhood elementary schools should be maintained regardless of any racial or ethnic imbalance they produce.
>
> b. Neighborhood elementary schools should be maintained, but, where possible, methods such as reducing the grade span of schools or pairing schools should be used to promote racial or ethnic balance.
>
> c. The idea of neighborhood elementary schools can be abandoned without significant loss.
>
> Which one of the following policies on busing elementary school children represents the best educational practice in your estimation?
>
> a. Children should not be bused to a school other than their neighborhood school.
>
> b. Children should be bused to another school only to relieve overcrowding.
>
> c. White (Anglo) and/or non-white children should be bused to schools with a predominantly different racial or ethnic composition, to achieve racial or ethnic balance.
>
> Which one of the following practices concerning parent and community involvement represents the best educational practice, in your estimation?

a. Parents and community should play a major role in the formulation of all educational policies.

b. Opinions on educational issues should be obtained from parents and the community to provide guidelines for educational decision-making.

c. Parents and the community should play a minor role in the formulation of educational policies.

The superintendents were also asked to indicate what racial/ethnic composition of faculty they felt was best suited for an all-minority or predominantly minority student body, a racially heterogeneous student body, and an all-white or predominantly White student body. The alternatives included: (a) all or predominantly White faculty; (b) all or predominantly minority faculty; (c) equal numbers of White and minority faculty members; and (d) some degree of integration, but ratio does not matter.

Second, the district superintendents were asked to state their own attitudes toward desegregation as well as their perceptions of the desegregation attitudes of various community and school personnel groups. These groups included students, school board members, White teachers, minority teachers, principals, and parents of students. Considerable care must be taken in interpreting the responses to this second set of questions, as they may represent projections of the superintendents' own attitudes rather than objective data on the attitudes of other groups. In either case, they are regarded for purposes of this discussion as indicative of the general milieu, at least within the district administration, regarding desegregation-related opinions and values.

Results for the attitudinal items described above are presented in Tables VIII-5 and VIII-6 for the Basic and Pilot superintendents. These results are discussed below for each of the two sample groups.

(1) Basic Superintendents

Table VIII-5 shows that approximately 61% of the Basic superintendents stated their personal preferences for maintaining neighborhood elementary schools while using methods such as reduced grade spans and paired schools to promote racial and ethnic balance. Another 30% of the Basic superintendents responded that "neighborhood elementary schools should be maintained regardless of any racial or ethnic imbalance they produce." Although half of the Basic superintendents indicated that they favored transporting White and/or non-white children for desegregation purposes, an additional 32% of the Basic superintendents responded that "children should not be bused to a school other than their neighborhood school." The majority of Basic superintendents (87%) thought that opinions on educational issues should be obtained from parents and from the community; the remaining 13% indicated they preferred a major role for parents and the community in the formulation of all educational policies.

TABLE VIII-15. SUPERINTENDENTS' RESPONSES TO THREE ITEMS DEALING WITH GENERAL EDUCATIONAL PRACTICES RELATED TO DESEGREGATION

I. Maintenance of Neighborhood Elementary Schools

Response Categories	Percentage of District Superintendents Selecting Response:	
	Basic	Pilot
Maintain neighborhood elementary schools regardless of imbalance.	29.0%	6.7%
Maintain neighborhood elementary schools but use reduced grade spans, pairing, etc.	61.3%	76.7%
Abandon idea of neighborhood elementary schools.	6.5%	13.3%
Missing	3.2%	3.3%

II. Transporting Elementary School Children

Response Categories	Percentage of District Superintendents Selecting Response:	
	Basic	Pilot
No busing other than to neighborhood school	32.3%	3.3%
Busing only to relieve overcrowding	12.9%	33.3%
Busing non-White and White children for desegregation purposes	51.6%	50.0%
Missing	3.2%	13.3%

III. Parent and Community Involvement

Response Categories	Percentage of District Superintendents Selecting Response:	
	Basic	Pilot
Parents and community should play a major role.	12.9%	43.3%
Opinions on educational issues should be obtained from parents and community.	87.1%	53.3%
Parents and community should play a minor role.	0.0%	0.0%
Missing	0.0%	3.3%

The results of items inquiring about the best faculty composition for schools with an all-minority or predominantly minority student body, schools with a racially heterogeneous student body, and schools with an all-white or predominantly White student body, were similar for most Basic superintendents across the three items. Approximately 70% of the responding superintendents agreed that the selection of faculty members for these three types of schools should result in some degree of integration, with the exact ratio variable. The remaining 30% felt that an equal number of White and minority faculty members was most appropriate.

Table VIII-6 indicates the various groups of school and community personnel for whom the district superintendents were asked to estimate desegregation attitudes. Again, it should be stressed that all responses in this table represent the superintendents' estimates of the other groups' attitudes, and may not be representative of the actual attitudes of those groups. In fact, it is clear that the Basic superintendents reported their attitudes toward desegregation as considerably more favorable than those of the other six groups. Thus, these results may be self-serving. However, Basic superintendents reported perceiving either favorable attitudes or indifference toward desegregation on the part of all groups except parents of students. For this group, nearly one-fourth were perceived by their district superintendents as being opposed to desegregation efforts.

TABLE VIII-6. SUPERINTENDENTS' PERCEPTIONS OF ATTITUDES OF VARIOUS COMMUNITY AND SCHOOL PERSONNEL GROUPS TOWARD DESEGREGATION

A. Basic Districts

Reference Group	Percentage of District Superintendents Responding That Perceived Attitude Toward Desegregation Is:		
	Like It	Do Not Care	Opposed To It
Superintendents	84.6	15.4	0.0
Most Students	29.6	70.4	0.0
Most School Board Members	68.0	28.0	4.0
Most White Teachers	40.0	52.0	8.0
Most Minority Teachers	46.2	46.2	7.7
Most Principals	50.0	46.2	3.8
Most Parents of Your Students	26.9	50.0	23.1

B. Pilot Districts

Superintendents	88.9	7.4	3.7
Most Students	44.4	48.1	7.4
Most School Board Members	65.4	19.2	15.4
Most White Teachers	46.2	30.8	23.1
Most Minority Teachers	57.1	32.1	10.7
Most Principals	53.8	38.5	7.7
Most Parents of Your Students	52.0	32.0	16.0

(2) Pilot Superintendents

Data reported in Table VIII-5 for Pilot superintendents indicate noticeable differences in their responses from those of the Basic superintendents with respect to all three items. First, a greater percentage of Pilot superintendents (77%) than of Basic superintendents (61%) expressed support for maintaining neighborhood elementary schools with reduced grade spans and pairing of schools. Twice as large a percentage of Pilot superintendents (13%) as of Basic superintendents (6.5%) felt that the idea of neighborhood elementary schools could be abandoned without significant loss. Also, a significantly smaller percentage of Pilot superintendents (6.7%) than of Basic superintendents (29.0%) selected the response advocating the maintenance of neighborhood elementary schools regardless of their racial or ethnic imbalance.

Second, a substantially smaller percentage of Pilot superintendents (3.3% as compared to 32.3% of the Basic superintendents) stated support for transporting elementary students to neighborhood schools only. Their responses indicated that they were more inclined to favor transporting both White and non-White elementary students for desegregation purposes (50%) and transporting elementary children to other schools to relieve overcrowding (33%).

Third, a large percentage of Pilot superintendents (43.3%) responded that the parents and the community should play a major role in the formulation of all educational policies. Among the Basic respondents, only 13% selected this response.

The results of items inquiring about the best faculty composition for schools with an all-minority or predominantly minority student body, schools with a racially heterogeneous student body, and schools with an all-White or predominantly White student body were highly similar to those reported for Basic superintendents. Roughly 66% of the responding Pilot superintendents agreed that the selection of faculty members for these three types of schools should result in some degree of integration, with the exact ratio variable. The remaining 34% felt that an equal number of White and minority faculty members was most appropriate.

Data reported in Table VIII-6 show that most Pilot superintendents claimed highly favorable attitudes toward desegregation on their own part (88.9%), but ascribed somewhat less favorable attitudes to other groups, such as students (44.4%), White teachers (46.2%), and parents (52.0%). In addition, 23% of the superintendents reported perceiving opposition to desegregation on the part of White teachers, while 15% felt that school board members were opposed and 16% perceived parents to be opposed. However, only 3.7% of the Pilot superintendents responded that they themselves were opposed to desegregation.

b. General Desegregation Policies

Table VIII-7 shows responses of Basic and Pilot superintendents concerning the general desegregation policies of their respective districts. A large percentage of both Basic (23%-52%) and Pilot (26%-33%) superintendents considered three of the questions inapplicable, or failed to complete them, so the results should be interpreted with caution.

TABLE VIII-7. GENERAL DESEGREGATION POLICIES OF ESAA DISTRICTS AS INDICATED BY RESPONSES OF BASIC AND PILOT DISTRICT SUPERINTENDENTS

Desegregation Policy	Percentage of District Superintendents Responding					
	Yes		No		Inapplicable/ Missing	
	Basic	Pilot	Basic	Pilot	Basic	Pilot
Use of public media presentation	39%	50%	16%	23%	45%	27%
Public meetings to discuss desegregation	32%	33%	16%	33%	52%	33%
Closing or converting all-minority schools into vocational or special schools	61%	37%	32%	53%	7%	10%
Development of contingency plan for racial/ethnic intergroup difficulty	29%	27%	48%	47%	23%	26%

(1) Basic Superintendents

Approximately 60% of the responding Basic superintendents reported that previously all-minority schools had been closed or converted into vocational or special schools. Fewer than 30% indicated that their school districts had developed a contingency plan in case of any racial/ethnic intergroup difficulty.

(2) Pilot Superintendents

Fifty percent of the Pilot superintendents indicated that public media presentations dealing with desegregation issues were used in their districts. Closing all-minority schools, or converting them into vocational or special schools, was practiced less frequently in Pilot districts (37%) than in Basic districts (61%), according to the two groups of superintendents: this is not surprising, since many of the Pilot districts had at least 90% minority students. As in the Basic sample, fewer than 30% of the Pilot districts were reported by their superintendents to have developed a contingency plan in case of any racial/ethnic intergroup difficulty.

c. Description of Incidents Related to Desegregation

The types of desegregation incidents reported by superintendents to have occurred in Basic and Pilot districts in the last five years are outlined in Table VIII-8.

TABLE VIII-8. DESCRIPTION OF INCIDENTS REPORTED TO HAVE OCCURRED IN CONNECTION WITH DESEGREGATION

Type of Incident	Percentage of District Superintendents Responding:			
	Yes		No	
	Basic	Pilot	Basic	Pilot
Closing of schools due to racial/ethnic intergroup tensions	19%	4%	81%	96%
Destruction of school property	16%	27%	84%	73%
Boycotts related to attempts to desegregate schools	10%	23%	90%	77%
Legal suits against a school, school board, or superintendent	39%	53%	61%	47%
Protests, demonstrations, and sit-ins	29%	43%	71%	57%

(1) Basic Superintendents

Legal suits against a school, school board, or superintendent (39%) and protests, demonstrations, and sit-ins (29%) were the types of incidents reported by Basic superintendents to have occurred most frequently in their districts. Boycotts (10%), destruction of school property (16%), and closing of schools (19%) occurred less frequently, according to the superintendents' reports.

(2) Pilot Superintendents

Pilot superintendents also indicated that legal suits (53%) and protests, demonstrations, and sit-ins (43%) were the types of incidents most likely to have occurred within their districts. However, the reported frequency of these two types of incidents in Pilot districts was higher than that reported by Basic superintendents (53% and 43%, as compared with 39% and 29%). In addition, approximately one-fourth of the Pilot superintendents reported destruction of school property and boycotts related to attempts to desegregate schools.

d. Elements of District Desegregation Plans

Results reported in this section are based on four district superintendent questionnaire items. These questions were included to provide information on plans currently being implemented by ESAA districts to either: (1) eliminate or reduce minority-group isolation; or (2) reduce the negative effects of minority-group isolation. The district superintendents were asked to indicate (1) whether their desegregation plan was a court order plan or a voluntary plan; (2) the procedures being used in the district to reduce minority-group isolation; (3) the percentage of students transported for desegregation purposes; and (4) the assignment practice used most frequently in the elementary and secondary schools within their districts.

(1) Basic Superintendents

Fifty-nine percent of the Basic superintendents reported that their districts were operating under court orders, while the remaining 41% indicated voluntary plans. The larger percentage of districts under court order reflects the fact that most Basic districts were located in the Southeast and South Central areas of the country, where such court orders have been fairly common.

Table VIII-9 shows the percentages of Basic and Pilot superintendents who replied positively to each of the five elements generally characteristic of desegregation plans. (Three Basic superintendents and five Pilot superintendents considered this item inapplicable.)

TABLE VIII-9. ELEMENTS OF DISTRICT DESEGREGATION PLANS

Elements	Percentage of District Superintendents Indicating "Yes"	
	Basic (N=28)	Pilot (N=25)
Transporting students from other areas	71.4%	52.0%
Establishing schools with limited grade levels	32.9%	48.0%
Pairing schools	28.6%	52.0%
Closing schools	53.6%	32.0%
Drawing new boundaries	75.0%	56.0%

The most common elements of district desegregation plans, as reported by Basic superintendents, were transporting students from other areas (71.4%) and drawing new boundaries (75.0%). All of the elements listed in Table VIII-9 were often used in combination with one another. For example, transporting students from other areas was frequently used in connection with pairing or closing schools, or with drawing new boundaries. However, there was no one consistent combination of these elements for any large number of the Basic districts.

As indicated in Table VIII-9, several Basic superintendents reported transporting students for desegregation purposes. In most of these cases, the superintendents stated that less than 20% of the total enrollment was involved in this practice. A few Basic superintendents reported more extensive transportation of students, with percentages of students transported ranging from 40% to 85%.

Basic superintendents reported that two primary methods were used for assigning elementary students to schools within the district: assignment by geographic area (56%), and transporting of some students in or out of their attendance area to achieve greater racial balance (44%). At the secondary level, the majority of Basic superintendents (78%) stated that their secondary students were assigned by geographic area only.

(2) Pilot Superintendents

Pilot superintendents indicated that Pilot districts were operating under court order plans (63%) more frequently than voluntary plans (37%). All of the five elements of desegregation plans were selected frequently (48%-56%), with the exception of closing schools (32%). Many Pilot districts (40%) used two elements in their plan, but some Pilot superintendents reported the use of three to five elements.

As in the Basic districts, Pilot superintendents reported low percentages of students transported primarily for desegregation purposes. Typically, less than 30% of the total enrollment was involved in this practice.

The most common assignment practices for elementary students, according to the Pilot superintendents, were assignment by geographic area (47%) and transporting students in or out of their attendance area to achieve greater racial balance (47%). This result is similar to that indicated by the responses of Basic superintendents. At the secondary level, there were substantial differences between Basic and Pilot districts. Pilot superintendents again indicated the use of both geographic area (43%) and transporting students in or out of their attendance area (50%), whereas the majority of Basic superintendents (74%) stated that their secondary students were assigned primarily by geographic area.

4. WHAT DESEGREGATION PLANS AND POLICIES WERE USED MOST FREQUENTLY IN ESAA EVALUATION DISTRICTS REDUCING MINORITY-GROUP ISOLATION?

A total of eleven Year Two evaluation sample districts achieved reductions in minority-group isolation between either fall 1973 and fall 1974, or fall 1972 and fall 1974. In nine of these cases, the districts had improved their D.I. values by .1. Although the number of districts showing improvement was rather small, their general district characteristics and their desegregation plans and policies were investigated. The results of these analyses are described below for Pilot and Basic districts, combined.

The district percentage of minority students, total enrollment size, and fall 1974 D.I. values varied widely for this group of districts. The mean percentage of minority students was 47%, with a range of 18% to 85%; the mean enrollment size was 57,951 students. Although the enrollment figures ranged from 7,471 to 85,290 students, 50% of the districts had under 25,000 students. The fall 1974 D.I. values for the eleven districts ranged from .3132 to .9140, with a mean of .7733. Five districts were located in the South Central and three in the Southeast; the three remaining districts were located in the Central Midwest, Southwest, and Pacific regions.

Investigation of the desegregation plans and policies of the eleven districts yielded somewhat equivocal results. The majority of superintendents (82%) reported that their districts were operating under court order plans. Approximately 55% of the districts transported students for desegregation purposes, according to the reports of the superintendents. The mean percentage of students transported in these districts was 11%. Few superintendents (27%) indicated the use of closing schools in their desegregation plans. On the other hand, transporting students (55%), pairing schools (45%), establishing schools with limited grade levels (45%), and drawing new school boundaries (55%) were used frequently. The responses of the superintendents suggested that the most common assignment practice for both elementary and secondary students was assignment by geographic attendance area (55%).

Two characteristics of these eleven districts appear to be most instrumental in explaining their D.I. improvement. First, nine of the eleven districts (82%) were operating under court order plans and were expected to improve the racial balance among their schools. Second, nearly 60% of these districts had low D.I.s in fall 1972 and fall 1973 (.3-.75), and therefore had more room for improvement than other ESAA districts.

C. SUMMARY

This chapter has focused on examining the status of minority-group isolation in ESAA award districts prior to the start of ESAA and during the second year of ESAA (1974-75 school year). The desegregation attitudes, plans, and policies of the Year Two evaluation sample districts were also investigated by means of data collected from the district superintendents. Some of the highlights of this chapter are:

- In fall 1972, Year Two Pilot and Basic award districts had achieved higher Black/White Desegregation Index values (.90 and .85, respectively) than the fall 1972 OCR survey universe containing approximately 8,000 school districts (.63).

- Mean OCR D.I. values in the fall of 1968, 1972, 1973, and 1974 for the Year Two Basic and Pilot award districts indicated that both universes had increased their D.I. values substantially between fall 1968 and fall 1974. Virtually all of this improvement had occurred by fall 1972, just prior to the start of ESAA.

- The number of schools in the district was the demographic characteristic most strongly related to the fall 1974 D.I. value for both the Basic and Pilot award districts. High D.I. values were most likely to occur in ESAA districts with a small number of schools.

- Fourteen of the Year Two award universe districts improved their D.I. values between fall 1973 and fall 1974. In addition, 35 of the longitudinal award districts made positive gains in D.I. values during the two years of funding. Percentage of minority students, fall 1974 D.I. status, and recency of desegregation varied widely among the districts in each group.

- A greater percentage of Pilot superintendents (77%) than of Basic superintendents (61%) expressed personal feelings of support for maintaining neighborhood elementary schools with reduced grade spans and pairing of schools. In addition, a significantly smaller percentage of Pilot superintendents (6.7%) than Basic superintendents (29.0%) advocated the maintenance of neighborhood elementary schools regardless of their racial or ethnic imbalance.

- Both Pilot and Basic superintendents expressed highly favorable attitudes toward desegregation on their own part, but ascribed somewhat less favorable attitudes to other school personnel and community groups.

- Approximately 60% of both the Pilot and Basic evaluation sample districts were operating under court order plans. The responses of Basic superintendents indicated that transporting students from other areas (71%) and drawing new boundaries (75%) were used most frequently in their district desegregation plans. In Pilot districts, transporting students from other areas (52%), establishing schools with limited grade levels (48%), pairing schools (52%), and drawing new boundaries (56%) were used frequently, according to superintendent reports.

- Two characteristics of the eleven sample districts reducing MGI appeared to be most strongly related to their D.I. improvement. First, the majority of the districts (82%) were operating under court order plans. Second, nearly 60% of these districts had low D.I.s in fall 1972 and fall 1973 (.3-.75), and therefore had more room for improvement than other ESAA districts.

CHAPTER IX

ANALYSIS OF GAINS IN ACHIEVEMENT TEST SCORES AND SCHOOL CLIMATE INDICES

A. OVERVIEW OF ANALYSES RELATED TO ESAA PROGRAM IMPACT

Analysis of overall program impact derives from the original experimental paradigm in which the ESAA evaluations are conducted. In this paradigm, sample districts were selected that contained pairs of schools initially matched on prior achievement, socioeconomic status, and percentage and type of minority student population. One school from each pair was then randomly assigned to the treatment (ESAA-funded) condition while its mate was assigned to the control (non-funded) condition. The basic assumption underlying the impact analyses--i.e., the comparison of outcomes in treatment and control groups--was that schools within pairs were alike in most respects at the beginning of the ESAA program and that the effects of ESAA funding could be evaluated by noting the presence of differential gain in student outcome measures between treatment and control schools.

In the first year of these evaluations, there was evidence that some of the assumptions underlying the experimental paradigm were not fully met. While treatment schools had a slightly larger amount of total funding than control schools, the differences were small in absolute magnitude, and there was an indication that some local LEAs were offsetting the presence of ESAA funding in the treatment schools with other supplemental funds in the control schools. In Year Two, the methodology for calculating certain categories of per-pupil expenditures was modified, so that results for the two years are not totally comparable. In the total supplemental expenditures for Year Two in all three evaluation samples, there were significant treatment-control differences favoring the treatment schools. However, these differences were in most cases very small in relation to the schools' total (regular plus supplemental) expenditures. Furthermore, in both the Basic Elementary and Pilot Elementary samples, there were no significant treatment-control differences in allocations of supplemental funds for activities having apparent relevance to the outcome measures used in this study.

One might expect the presence of special supplemental (ESAA) funds to produce differentiated programs between recipients and non-recipients; however, in neither the first nor the second year of program operation has clear evidence emerged that treatment programs were different in any consistent, substantial way from control school programs. The probable spuriousness of some scattered treatment-control differences is indicated by a lack of consistency in the types of differences from year to year, and by the failure of programs that have been in the study two years to show consistent patterns of program characteristics. These findings have reduced our expectations of finding meaningful treatment-control outcome differences in the second year, or for the combined two years.

Most of the analyses in the following pages are similar in form to those conducted during the first year. The major differences in Year Two analyses were the addition of the School Climate Questionnaire outcome measure, and the separate longitudinal analyses conducted for districts that have been in the evaluation both years. The remainder of this section (Section A) discusses the outcome measures and the analysis samples. The following section describes the methodology and results of the overall analyses of program impact. Next, several subanalyses of overall program impact are discussed; some of these subanalyses used blocking techniques to examine differential program effects for various subgroups of districts, while others used school-level covariates in an attempt to increase the precision of the experimental comparison. A final section examines overall achievement gains made by students in both treatment and control schools, in relation to a criterion of expected growth.

1. OUTCOME MEASURES

For purposes of the Year Two impact analyses, achievement measures have been simplified to total score in the two content areas (reading and mathematics). It was found that considerable colinearity existed between the reading vocabulary and comprehension subtests, and between the mathematics concepts and computation subtests, causing difficulty in the interpretation of apparently spurious results. The use of a smaller number of outcomes, each of distinct and separate content, resulted in more stable, interpretable results.

The values of the achievement scores used in all the impact analyses decribed in this chapter are the publisher's scale scores* associated with each student's raw scores. These scale scores are determined by the use of the publisher's normative tables, and allow scores from different forms and levels of the tests to be converted to a single scale. Transformation to scale scores was necessitated by the study's use of alternative test forms in pretesting and posttesting, and by the fact that the test level changed between grades three (level 2) and four (level 3).

Throughout this chapter, achievement test results are described in terms of achievement gains; these gains are defined by the pretest-posttest differences in the scale score units. Gain scores were preferred to adjusted posttest scores because of their direct interpretability. However, as a check on the efficacy of this approach, approximately half of the analyses were repeated, using covariance-adjusted posttest scores, calculated as in the Year One analyses. Briefly, those adjustment procedures used, as the measure of instructional effect, the value of the posttest adjusted for three student background measures: (1) previous achievement (pretest on the measure in question); (2) general verbal ability (pretest vocabulary); and (3) socioeconomic status (as measured by possessions in the home*). In none of the analyses reported in this chapter did the use of the alternative outcome alter the interpretation of the results reported here.

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*The Achievement Development Scale Scores (ADSS) of the California Achievement Tests were used at the elementary level, for both reading and mathematics, and at the secondary level for mathematics. Scale scores in secondary-level reading were from the Reading Power Scale of the Iowa Test of Basic Skills.

New to the Year Two analysis is the use of the School Climate Questionnaire (SCQ) data. For purposes of this chapter, students' scores on each of the SCQ scales** appropriate to their school were computed. The primary outcome was the simple difference in SCQ scale scores between pretest and posttest administrations. All scales were scored such that the higher the score, the more positive was the student's perception of that particular dimension of the school climate. Thus, positive change scores were to be expected if the program was actually improving the perceived climate of the school.

2. IMPACT ANALYSIS SAMPLES

During the first year of the evaluation, separate analyses were conducted for each grade within the Pilot Elementary, Basic Elementary, and Basic Secondary evaluation samples. This same breakdown is continued in the present report, but an additional sample dimension has been added. Within each of the three major sample groups, a distinction is made between the cross-sectional and longitudinal samples at both the school and student levels. The cross-sectional sample is defined as all paired (treatment and control) schools and all students in those schools participating in the second year. The longitudinal school sample is defined as all paired schools in the second-year sample that were also present in the first-year sample. The longitudinal student sample consists of that subset of students in the longitudinal school sample who were present in both school years. The longitudinal samples at both the school and student level are subsets of the cross-sectional samples, and results for the two are therefore not independent.

In all of the impact analyses, the primary outcomes were the student scores aggregated to the school level. Thus, the numbers of schools and students in each sample were a function of the number of students for whom complete data were obtainable. It should be noted that five elementary schools are not included in the analyses of school climate outcomes because SCQ posttest data were not obtainable in these schools due to parental objection to the collection of attitudinal data. While the absence of these schools may have a biasing effect on the SCQ analysis results, the direction and size of that bias is unknown. These schools did not appear to be systematically different from the other elementary schools in the sample along demographic characteristics of location, enrollment, or percentage and type of minority population.

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*See Chapter IV for a definition of the SES scale used.

**See page IV-17 for a description of the SCQ scales used at the elementary and secondary levels.

B. OVERALL ANALYSIS OF PROGRAM IMPACT

The statistical methodology employed in assessing program impact paralleled that used in the first year. A treatment-by-blocks analysis-of-variance framework was applied, where the treatment dimension was defined by the assignment of ESAA funding (funded or non-funded) and where districts were considered blocks. The use of this design increases the precision with which treatment effects are assessed, over that obtainable by a simple comparison of the average treatment and control outcomes. This increase in precision is obtained by taking into account the known variability among districts. To the extent that the districts differed along dimensions associated with the outcome measures, the use of the treatment-by-blocks design removed the contribution of between-districts variability from the error variance, reducing the standard error of the estimate of the treatment effect.

1. YEAR TWO CROSS-SECTIONAL IMPACT ANALYSIS

The analyses presented below are directed toward the assessment of overall program impact across all students and schools in the samples of paired treatment and control schools participating in the second year of the evaluation. Analyses are described separately for each of the three evaluation samples.

a. Pilot Elementary Results

Using the analysis-of-variance framework described above, analyses of the achievement test score gains and school climate change scores were conducted for the second-year cross-sectional sample. The results of these analyses appear in Table IX-1. Table entries are the average gains for treatment and control schools, and the differences in achievement test gains between treatment and control schools. A positive value for the treatment-control difference indicates that the average gain in treatment schools was greater than that observed in control schools, while a negative value indicates that control schools showed greater average growth. The results are somewhat surprising. Control schools out-performed treatment schools in both the third and fifth grades, but treatment schools were slightly superior in gains at the fourth grade. At the fifth-grade level, the negative treatment effect (in favor of control schools) was statistically significant ($p < .05$) for both reading and mathematics outcomes.

Table IX-2 shows the average changes and the treatment effects for changes in school climate scale scores. While there was a slight tendency for results to favor control schools, there were no statistically significant differences in the Pilot data. There was, generally, very little change in the school climate indices between pretest and posttest administrations. In fact, some of the apparent effects favoring control schools represent less decline in control schools than in treatment schools. There was no clear consistency in the pattern of changes across the two indices, across grades, or between treatment and control, with respect to initial SCQ level or to the size and direction of change.

TABLE IX-1. PILOT ELEMENTARY SAMPLE (CROSS-SECTIONAL): TREATMENT-CONTROL DIFFERENCES IN MEAN ACHIEVEMENT SCORE GAIN

Grade	Number of Pairs	Mean Reading Gain		
		Treatment	Control	Treatment-Control Difference
3	15	22.23	23.44	-1.21
4	20	21.62	19.68	1.93
5	20	14.28	21.50	-7.23*
		Mean Mathematics Gains		
3	15	28.66	29.98	-1.32
4	20	23.54	22.19	1.36
5	20	14.61	21.67	-7.06*

* $p<.05$

TABLE IX-2. PILOT ELEMENTARY SAMPLE (CROSS-SECTIONAL): TREATMENT-CONTROL DIFFERENCES IN MEAN SCORE CHANGE IN SCHOOL CLIMATE INDICES

Grade	Number of Pairs	Mean TSI Change[1]		
		Treatment	Control	Treatment-Control Difference
3	15	-1.30	0.14	-1.44
4	19	0.53	0.94	- .41
5	19	-1.16	-0.10	-1.06
		Mean TP Change[2]		
3	15	-3.88	-0.53	-3.35
4	19	-1.69	-4.94	3.25
5	19	-3.09	-1.92	-1.17

[1] TSI = Teacher-Student Interaction scale of the School Climate Questionnaire.

[2] TP = Treatment by Principal scale of the School Climate Questionnaire.

b. Basic Elementary Results

The results of the analysis of Basic Elementary achievement test gains for the second year are presented in Table IX-3. In this sample all districts and school pairs had been in the evaluation for two years, and thus represented both the cross-sectional and longitudinal school samples. Here, there were no statistically significant differences associated with the program; there was, however, a consistent pattern of a positive (but non-significant) treatment effect across grade levels and across outcome measures. This pattern represents an important deviation from the very mixed and inconsistent pattern present in the first-year data.

TABLE IX-3. BASIC ELEMENTARY SAMPLE (CROSS-SECTIONAL): TREATMENT-CONTROL DIFFERENCES IN MEAN ACHIEVEMENT SCALE SCORE GAIN*

Grade	Number of Pairs	Mean Reading Gain		
		Treatment	Control	Treatment-Control Difference
3	32	20.91	19.34	1.56
4	34	23.61	20.08	3.52
5	33	16.34	13.51	2.82
		Mean Mathematics Gain		
3	32	33.48	32.07	1.41
4	34	26.69	23.43	3.26
5	33	19.44	15.91	3.52

*All Basic Elementary schools have been in the sample for two years. Therefore, the results presented in this table are for both the cross-sectional and longitudinal school samples.

No significant differences associated with the program were found in the change scores of the two school climate indices. The pattern of the average change scores (see Table IX-4) was inconsistent, and the size of the changes was small. Basic Elementary sample results tended to yield more positive differences in favor of the treatment than did Pilot sample results, but the size of the differences and the inconsistency of these patterns do not warrant an attempt at interpretation.

TABLE IX-4. BASIC ELEMENTARY SAMPLE (CROSS-SECTIONAL): TREATMENT-CONTROL DIFFERENCES IN MEAN CHANGE IN SCHOOL CLIMATE INDICES*

Grade	Number of Pairs	Mean TSI Change		
		Treatment	Control	Treatment-Control Difference
3	27	0.37	-0.69	1.07
4	30	-0.27	-0.19	-0.08
5	30	1.10	-0.15	1.25
		Mean TP Change		
3	27	-2.08	-1.76	-0.32
4	30	-0.05	-1.29	1.24
5	30	-0.18	-1.17	.99

*All Basic Elementary schools have been in the sample for two years. Therefore, the results presented in this table are for both the cross-sectional and longitudinal school samples.

c. Basic Secondary Results

Results for the Basic Secondary achievement score analysis* are presented in Table IX-5 for the cross-sectional school sample. Reading change scores showed an effect in favor of control schools, which tended to increase in magnitude with increasing grade level. This pattern was found for both the full cross-sectional sample and the longitudinal subgroup. It is worth noting that reading achievement at the secondary level showed virtually no change over the school year; therefore, many of these results indicate that control schools were holding a "no growth" pattern while treatment schools were evidencing a score decline.

TABLE IX-5. BASIC SECONDARY SAMPLE (CROSS-SECTIONAL): TREATMENT-CONTROL DIFFERENCES IN MEAN ACHIEVEMENT GAIN

Grade	Number of Pairs	Mean Reading Gain		
		Treatment	Control	Treatment-Control Difference
10	20	- .58	1.10	- .52
11	20	-0.40	0.75	-1.15
12	20	-3.14	-0.04	-3.10*
		Mean Mathematics Gain		
10	20	9.20	15.39	-6.19
11	20	7.13	4.79	2.34
12	20	11.57	2.56	9.00

* $p < .05$

In mathematics, the pattern shows a non-significant program effect in favor of control schools at the tenth-grade level, then a shift to a small effect in favor of treatment schools at the eleventh grade, and finally, a larger positive effect at grade twelve.

Results of the analysis of school climate outcomes are presented in Table IX-6. It should be remembered that there were a total of six SCQ outcomes at the secondary level. Four of these were available from all schools: (1) Teacher-Student Interactions (TSI); (2) Treatment by Administrators I--principals and vice principals (AD1); (3) Treatment by Administrators II--counselors (AD2); and (4) the Index of Alienation (IAL). The last two, Perceived School Discrimination (PSD) and Student Intergroup Relations (SIR), were available only from schools with racially mixed student enrollments (10%-90% minority). None of the treatment-control differences proved significant, and there was little consistency in the pattern of differences. The patterns over grades might suggest a lessening of perceived student-teacher interaction as grade increases in treatment schools. For that subgroup of districts with more mixed student enrollments, there seems to be a positive effect (in favor of treatment schools) in the Perceived School Discrimination Index and a negative effect (favoring control schools) on the index of Student Intergroup Relations.

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*It should be remembered that different achievement measures were used for reading and mathematics at the secondary level and, therefore, units on the respective scale scores are not directly comparable. Mathematics scale scores have considerably greater variability.

TABLE IX-6. BASIC SECONDARY SAMPLE (CROSS-SECTIONAL): TREATMENT-CONTROL DIFFERENCES IN MEAN CHANGE IN SCHOOL CLIMATE INDICES

Grade	Number of Pairs	Mean TSI Change		
		Treatment	Control	Treatment-Control Difference
10	20	-0.23	-0.26	.03
11	20	-0.43	-0.05	- .39
12	20	-0.36	0.96	-1.32
		Mean AD1 Change		
10	20	0.89	2.49	-1.60
11	20	0.88	1.26	- .37
12	20	-0.25	1.92	-2.17
		Mean AD2 Change		
10	20	2.05	2.33	- .28
11	20	1.77	.78	.98
12	20	0.46	2.28	-1.82
		Mean IAL Change		
10	20	-0.35	0.02	- .38
11	20	0.41	0.37	.04
12	20	0.28	0.12	.16
		Mean PSD Change[1]		
10	20	-0.39	0.40	- .79
11	20	0.67	-0.94	1.61
12	20	2.02	-1.17	3.20
		Mean SIR Change[1]		
10	20	-2.23	-1.66	- .56
11	20	-1.25	-0.52	- .73
12	20	-2.97	-1.72	-1.25

[1] Scales PSD and SIR are available for only 12 pairs of schools.

2. ANALYSIS OF PROGRAM MATURATION EFFECTS

A second important concern in the analysis of funding impact was the assessment of treatment effects for local ESAA programs that had been in operation more than one year. If programs that had been in operation for two years demonstrated larger program effects than those that had begun only in the second year, it might be inferred that programs became more effective with time. Such a result, if found, would indicate that a start-up period was required for programs to realize their effectiveness.

The samples for these analyses were the longitudinal sample of schools, i.e., schools that had been in the evaluation studies both the first and second years. Within those schools, data from all sample students--both those continuing from the first year and new students--were used to estimate school gains. No results are reported for the Basic Elementary evaluation sample; since all schools were continuing, the results for this sample were described in Section 1, above.

a. Pilot Elementary Results

Table IX-7 shows results of the analysis of achievement gain scores for schools that were in both years' evaluation samples. These results demonstrate a very similar pattern to that shown for the full cross-sectional sample (Table IX-1). The larger negative effect found in grades 3 and 5 was the result of larger gains demonstrated by control schools in this subsample; differences in mean gains between new and continuing schools were much smaller for the treatment group than for the control group. Overall, however, there was no evidence of program maturation, in any positive sense, for this sample.

TABLE IX-7. PILOT ELEMENTARY SAMPLE (LONGITUDINAL):
TREATMENT-CONTROL DIFFERENCES IN MEAN ACHIEVEMENT SCORE GAIN

Grade	Number of Pairs	Mean Reading Gain		
		Treatment	Control	Treatment-Control Difference
3	8	22.60	24.60	- 2.00
4	13	24.15	24.10	0.40
5	13	12.69	23.79	-11.10*
		Mean Mathematics Gain		
3	8	28.72	35.14	- 6.42
4	13	26.73	24.54	2.19
5	13	17.74	25.06	- 7.32*

* $p<.05$

b. Basic Elementary Sample

Since no new schools were drawn into the Basic Elementary sample in Year Two, the cross-sectional and longitudinal samples are identical. The results for the cross-sectional anlyses are reported on page IX-6.

c. Basic Secondary Sample

Program impact data for the longitudinal sample of Basic Secondary schools appear in Table IX-8. New and continuing schools in the secondary sample demonstrated nearly equivalent patterns of gains, and the results for the longitudinal subsample were generally similar to those for the full cross-sectional sample (see Table IX-5). However, gains in mathematics were somewhat larger for the longitudinal sample than for the sample of schools newly selected in the second year, suggesting a possible program maturation effect in this content area.

TABLE IX-8. BASIC SECONDARY SAMPLE (LONGITUDINAL):
TREATMENT-CONTROL DIFFERENCES IN MEAN ACHIEVEMENT SCORE GAIN

Grade	Number of Pairs	Mean Reading Gain		
		Treatment	Control	Treatment-Control Difference
10	10	1.15	1.30	-0.15
11	10	-0.56	1.46	-2.02
12	10	-3.13	0.36	-3.50
		Mean Mathematics Gain		
10	10	16.14	18.80	-2.66
11	10	10.11	5.39	4.70
12	10	15.82	0.91	14.91

3. ANALYSIS OF CUMULATIVE PROGRAM IMPACT

An important design feature of the ESAA evaluation efforts was the following of individual students and the collection of data on sample students participating in the study for both evaluation years (i.e., the longitudinal student sample). The following sections describe changes in student achievement levels, over the two-year history of the evaluation, for that longitudinal student sample. Analyses summarized here attempt to determine whether the ESAA program had cumulative effects on students, or whether the learning curves flattened out in the second year.

a. Pilot Elementary Results

Of the sample of 18 pairs of Pilot schools present in the first year of the evaluation, 13 pairs of schools were present in the second year. One school, although refunded, had no continuing students in its ESAA program, thus shrinking the sample for analysis of program effects to 12 pairs. Results of the analyses of the gain between the first-year pretest and the second-year posttest appear in Table IX-9. These results are based on data from the longitudinal student sample.

TABLE IX-9. TREATMENT-CONTROL DIFFERENCES IN MEAN ACHIEVEMENT GAIN: DIFFERENCE BETWEEN FIRST YEAR PRETEST AND SECOND YEAR POSTTEST FOR PILOT LONGITUDINAL SAMPLE

Grade	Number of Pairs	Mean Reading Gain		
		Treatment	Control	Treatment-Control Difference
3/4	10	40.86	52.53	-11.67
4/5	12	23.29	35.10	-11.73
		Mean Mathematics Gain		
3/4	10	65.16	62.34	2.82
4/5	12	68.51	80.81	-11.67

For longitudinal sample students who began the evaluation period (i.e., Year One pretest) in the third grade (designated as the "Grade 3/4" sample), there was a small apparent effect in favor of control schools for the reading outcome, and an effect in favor of treatment schools for the mathematics outcome, although neither effect was statistically significant. For students who began Year One as fourth graders (designated as the "Grade 4/5" sample), both effects favored the control schools, but neither was significant.

The patterns of growth over the two years are presented in Figure IX-1.* There are two points of special interest in these graphs. First, one notes the differences in Year One posttest to Year Two pretest for the two grade-level samples; while the grade 4/5 sample shows considerable growth, the grade 3/4 sample shows virtually no change. However, there is some reason to believe that this finding was an artifact of the level-to-level articulation of the measures, and not a realistic indicator of the growth curve. Because the grade 3/4 sample was tested with a different level of the achievement measure each year, results for this sample may reflect some inadequacy of the scaling procedure rather than the true shape of the growth curve. The grade 4/5 sample was tested in both years with the same level measure and, therefore, the growth curve for this group probably reflects the actual learning more accurately.

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*Student-level achievement means for each testing period appear in the table of Appendix G and reflect the same patterns and magnitudes of difference as the school-level means prescribed in Figures IX-1 through IX-3.

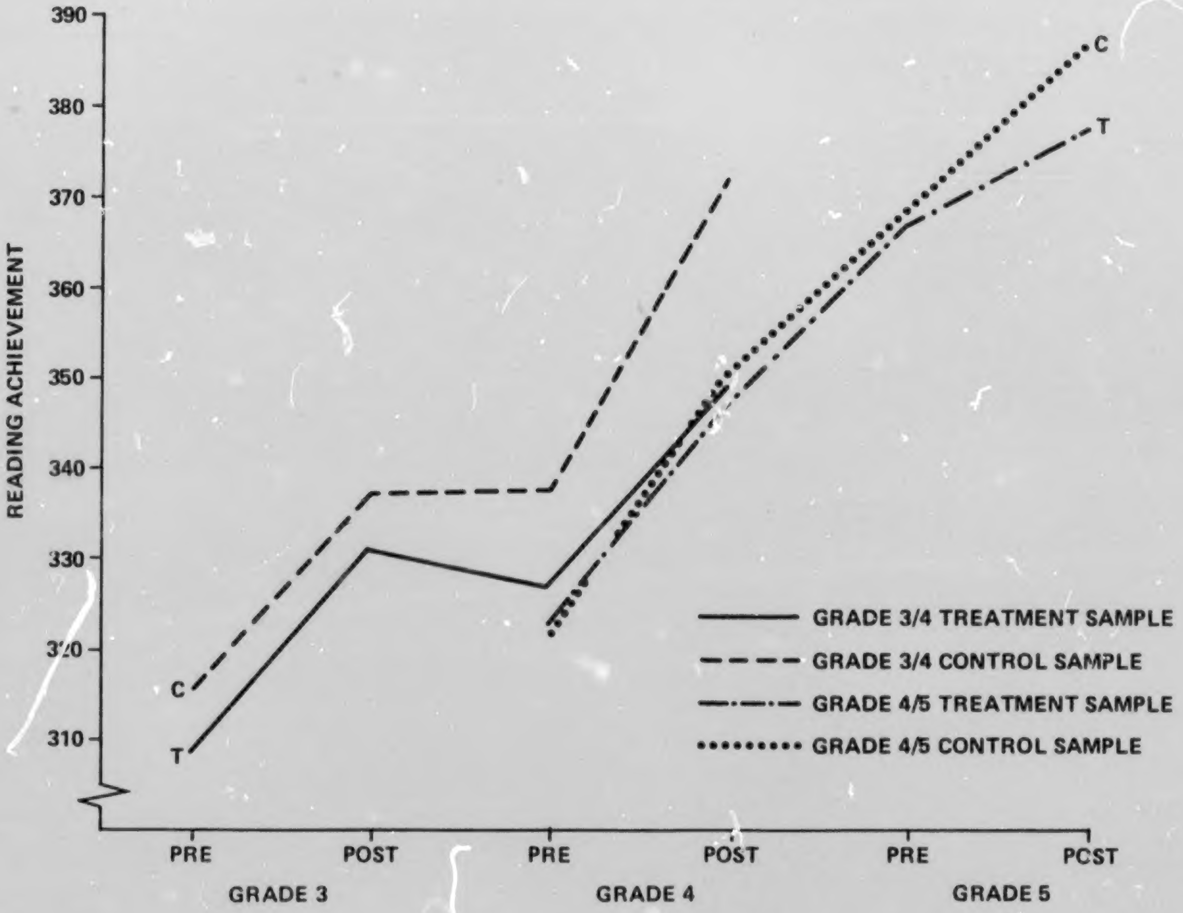

FIGURE IX-1a. ACHIEVEMENT TEST SCORE GROWTH PATTERNS FOR PILOT LONGITUDINAL STUDENTS: READING

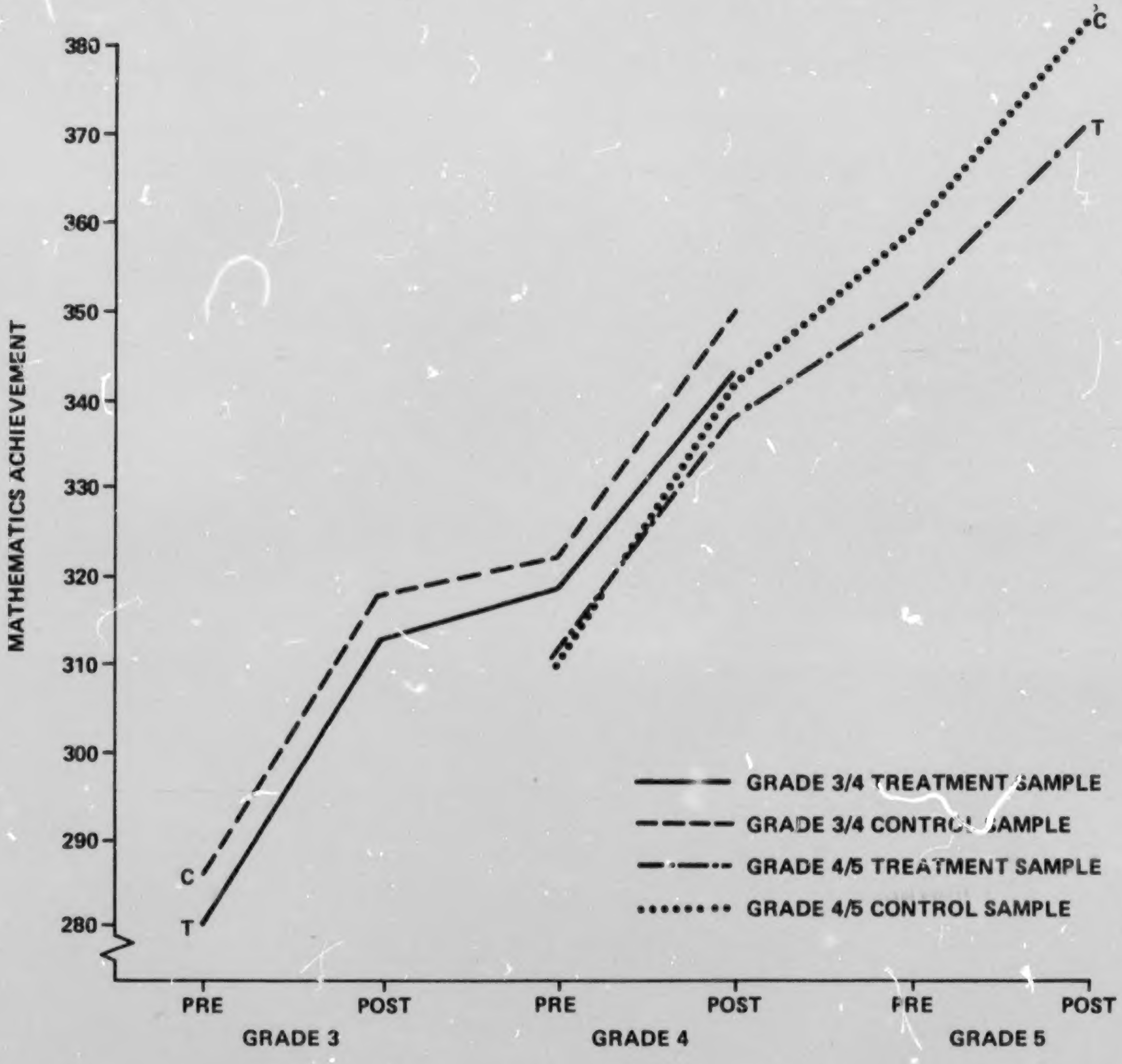

FIGURE IX-1b. ACHIEVEMENT TEST SCORE GROWTH PATTERNS FOR PILOT LONGITUDINAL STUDENTS: MATHEMATICS

A second point of interest in Figure IX-1 is that the slope of the gains tended to decrease slightly with higher grade levels. These results indicate that students tended to have smaller gains at higher grade levels and that students who have been in the study sample for two years tended to make smaller gains in the second year than they had in the first year.

b. Basic Elementary Results

The Basic Elementary evaluation sample was the least affected by loss of schools between the first and second years. Of the 36 pairs of schools used in the first-year analysis of program impact, 34 were retained in the second year.

Two-year gains for Basic Elementary students who were in the evaluation sample both years are shown in Table IX-10. A consistent pattern of positive differences, favoring the treatment schools, occurred across the two outcome measures and the two grade-level samples. For the grade 4/5 sample, the mathematics outcome shows a statistically significant ($p < .05$) effect in favor of treatment schools. Given the stability of the larger sample size in the Basic Elementary analysis, the direction and consistency of these results are most encouraging. The patterns are primarily a result of second-year differential between treatment and control gains, since in the first year virtually no such effect was observed for this group of schools.

TABLE IX-10. BASIC ELEMENTARY SAMPLE:
TREATMENT-CONTROL DIFFERENCES IN CUMULATIVE (TWO-YEAR) ACHIEVEMENT GAINS

Grade	Number of Pairs	Mean Reading Gain		
		Treatment	Control	Treatment-Control Difference
3/4	33	46.22	44.29	1.92
4/5	33	29.52	27.28	2.24
		Mean Mathematics Gain		
3/4	33	64.39	61.57	2.82
4/5	33	72.88	67.72	5.16*

*$p < .05$

The growth patterns of achievement test scores of students in the longitudinal student samples are plotted in Figure IX-2. These patterns again indicate a probable level-articulation anomaly between the third and fourth grades, where different levels of the achievement battery were used. In general, the results suggest that second-year gains were smaller than gains in the first year; in addition, there was a tendency for gains to be smaller with increasing grade level.

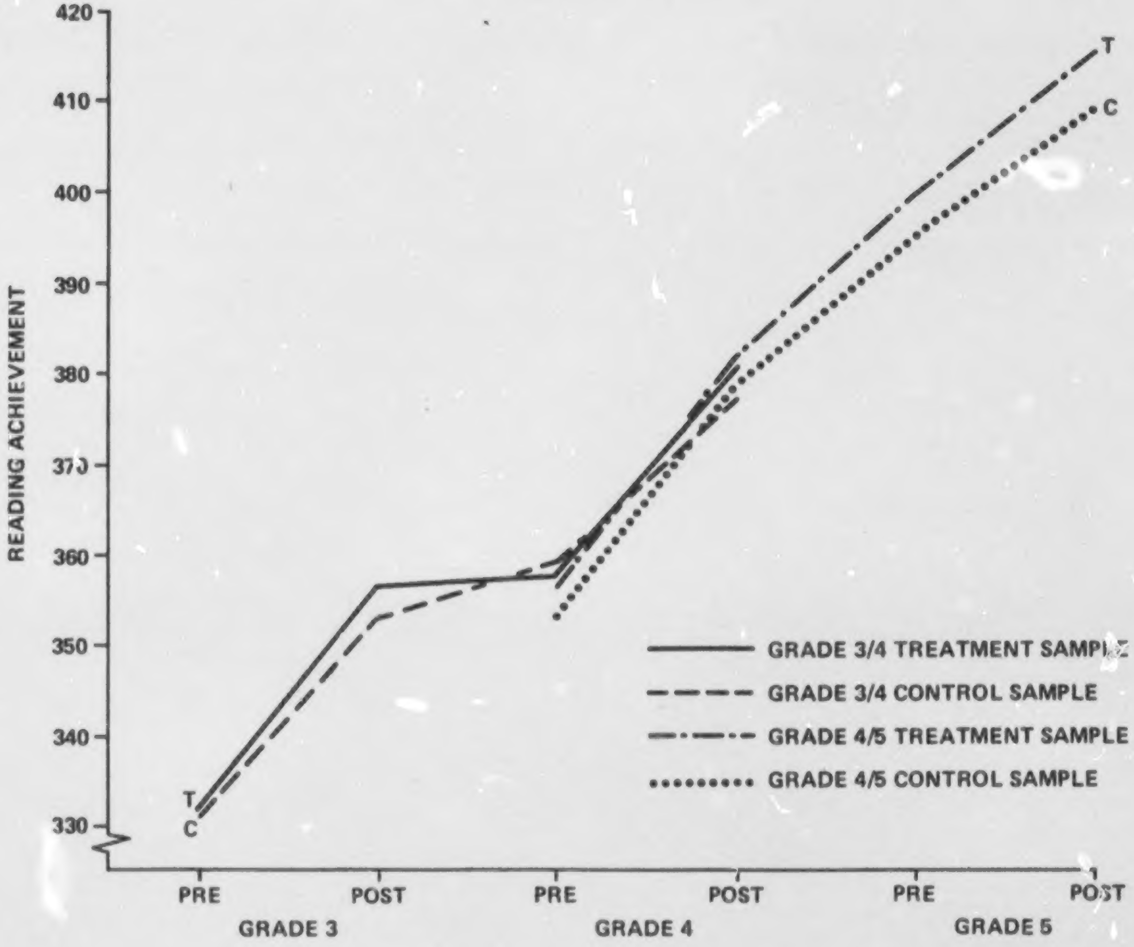

FIGURE IX-2a. ACHIEVEMENT TEST SCORE GROWTH PATTERNS FOR BASIC ELEMENTARY LONGITUDINAL SAMPLE STUDENTS: READING

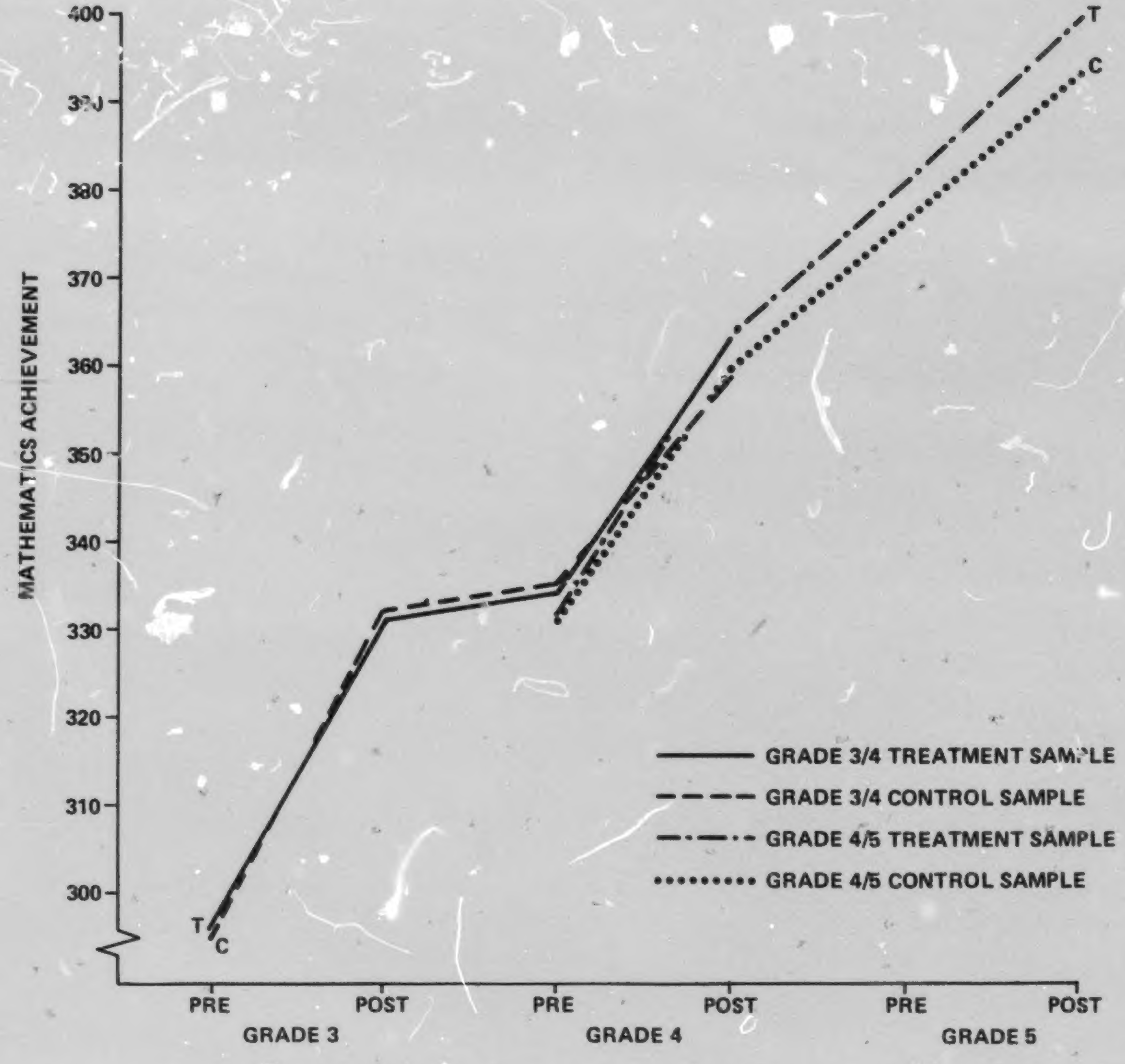

FIGURE IX-2b. ACHIEVEMENT TEST SCORE GROWTH PATTERNS FOR BASIC ELEMENTARY LONGITUDINAL SAMPLE STUDENTS: MATHEMATICS

c. Basic Secondary Results

While the first-year sample of secondary pairs of schools was very small, all but one of the original eleven pairs were retained in the second year. One school, although present in both years of the evaluation, had no students continuing in its treatment program, and was therefore dropped from the longitudinal analyses. Thus, data were available on nine pairs of schools with students who had been in their respective treatment and control conditions for two years.

Two-year achievement gains for the secondary sample are presented in Table X-11. Differences in reading achievement gains favored the control schools in both longitudinal grade samples, and were significant (p <.05) for the grade 11/12 group. Mathematics results were mixed and insignificant.

TABLE IX-11. BASIC SECONDARY SAMPLE:
TREATMENT-CONTROL DIFFERENCES IN CUMULATIVE (TWO-YEAR) ACHIEVEMENT GAINS

Grade	Number of Pairs	Mean Reading Gain		
		Treatment	Control	Treatment-Control Difference
10/11	9	3.73	5.59	-1.86
11/12	9	-0.99	5.29	-6.28*
		Mean Mathematics Gain		
10/11	9	33.02	30.42	2.60
11/12	9	23.24	30.17	-6.94

* p <.05

The achievement test patterns are graphically presented in Figure IX-3. A surprising pattern is apparent in these data, with second-year pretests often considerably higher than both first-year and second-year posttests. Since second-year posttest scores were generally higher than those for first-year posttests, some overall learning clearly occurred during the calendar year. No reasonable explanation is obvious for this apparent drop during the period when most of the formalized practice and instruction should have occurred. However, the rather flat growth curves for eleventh and twelfth graders in mathematics is not surprising, since mathematics is not, in general, a required high school subject beyond the tenth grade. Many of these students may not have been involved in mathematics courses, and their skills may have been deteriorating.

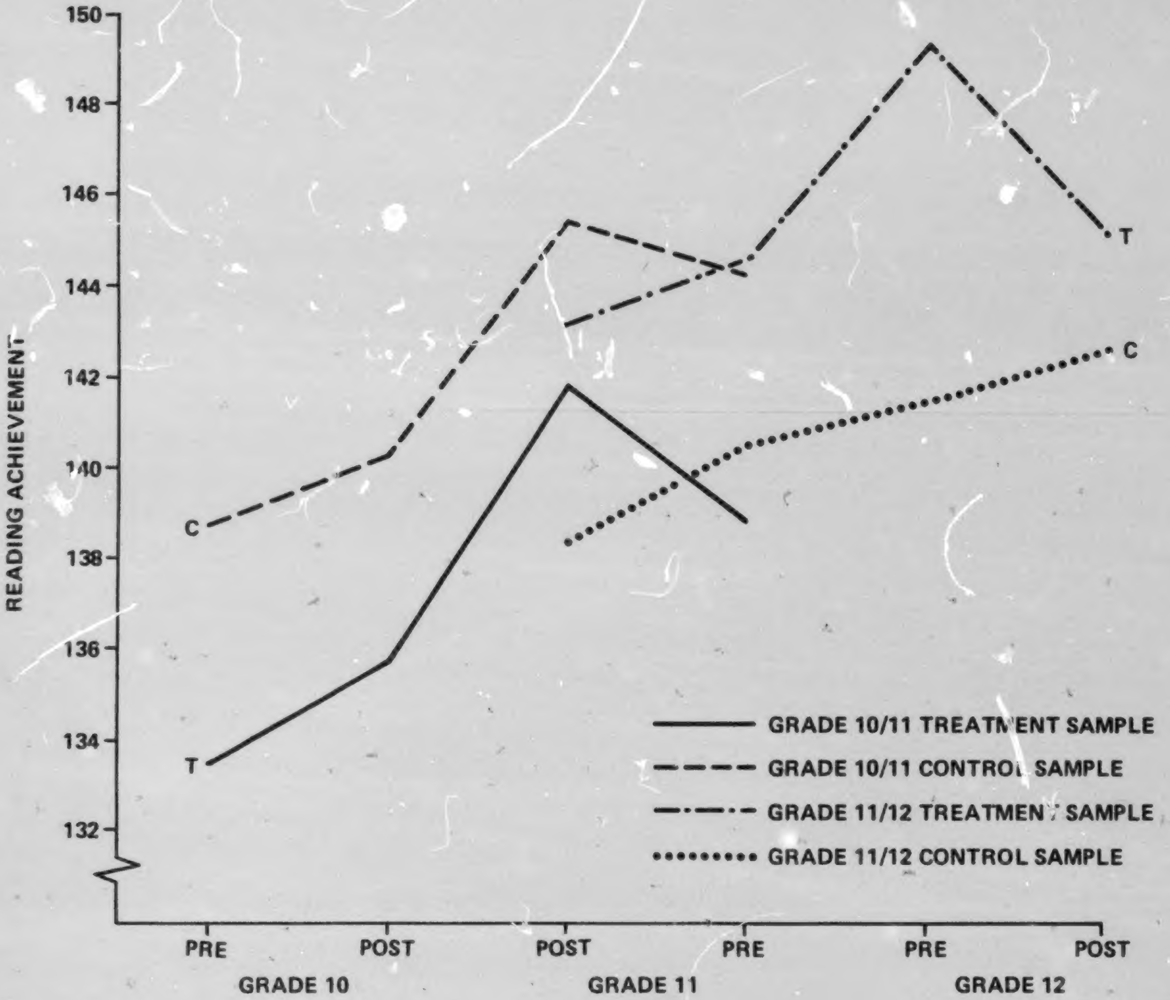

FIGURE IX-3a. ACHIEVEMENT TEST SCORE GROWTH PATTERNS FOR BASIC SECONDARY LONGITUDINAL STUDENTS: READING*

*It should be remembered that different achievement measures were used for reading and mathematics at the secondary level and, therefore, units on the respective scale scores are not directly comparable. Mathematics scale scores have considerably greater variability.

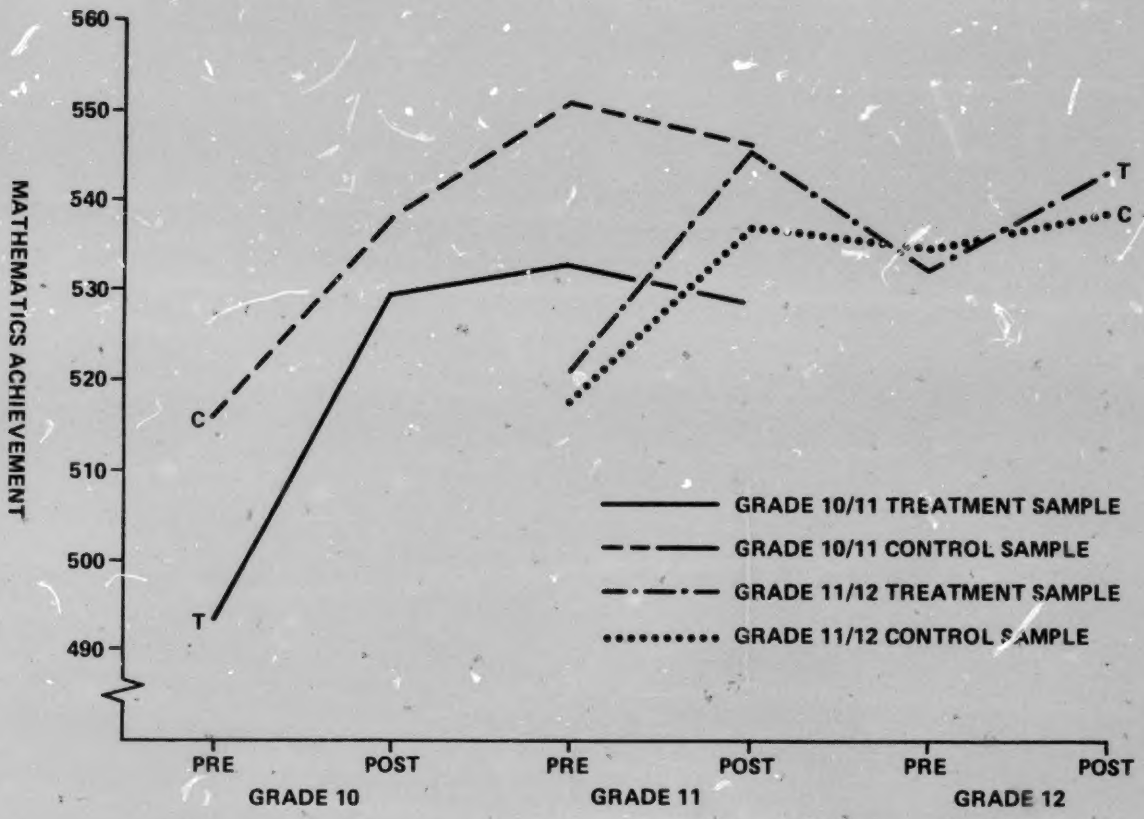

FIGURE IX-3b. ACHIEVEMENT TEST SCORE GROWTH PATTERNS FOR BASIC SECONDARY LONGITUDINAL STUDENTS: MATHEMATICS

C. IMPACT ANALYSES EMPLOYING BLOCKING AND COVARIANCE TECHNIQUES

1. BLOCKING ANALYSES

In order to investigate the possibility of differentiated program effects (i.e., treatment-control differences that occur for certain kinds of districts and not for others), a series of analyses was run that grouped districts into homogeneous blocks. These analyses involved first the formation of blocks of districts with similar values on some variable of interest, and then the analysis of outcome data within a treatment-by-block analysis-of-variance model, with districts nested within the defined blocks. Blocks could be defined for any variable that (a) had the district as its fundamental referent (or could be meaningfully aggregated to the district level), and (b) was thought to be related to the outcome measure. For example, it could be reasoned that certain funding variables might be related to achievement outcomes and that program impact might be different at different levels of funding.

Blocking analyses were conducted only for the achievement test outcomes, i.e., gains in student achievement scores. (Because there was very little change in the school climate outcomes, and because the total and within-school variabilities were very nearly equal, there were no expectations of finding differentiated effects.) As in the case of the overall impact analyses, many of the analyses were repeated using posttest scores adjusted for students' initial scores and background variables. No inconsistencies were found between the results of the analyses using the two methods.

During the first year of the evaluation, three types of blocking and subgrouping variables were used in the evaluation of differential program impact. The first of these related to program funding, the second to program intensity, and the third to the focus of program objectives. The blocking analysis in the second year began with these factors, but because the first-year analyses did not yield promising results, an attempt was made to refine the blocking variables and to use only those for which there were strong expectations of differentiated effects. This search for more refined blocking variables had several important consequences, which will be discussed here before results are presented.

The analyses blocking on variables related to funding were conducted in a manner exactly parallel to their first-year counterparts. However, an examination of program intensity data, prior to establishing the blocking categories, indicated that the variables were only weakly related to the outcomes and that there was greater within-district than between-district variance. Meaningful blocks could therefore not be established, and intensity was dropped from the blocking analyses.

In considering possible program focus variables, a set of variables was examined that was more complex than the simple set of objectives used in the first year. Efforts centered around defining a series of program profiles on both a conceptual and a concrete basis. Variables related to administrative and instructional philosophy were investigated in searching for conceptual profiles, while amount of exposure in reading and math, resource allocations of aides and specialized staff, and teachers' indications of the relative importance of various instructional areas and techniques were examined in searching for concrete, operational profiles. Neither effort yielded readily interpretable, clear profiles. There does seem to be some promise, however, in continuing this effort with more complex analytical methods. These data will continue to be analyzed and compared across study years in an attempt to define program profile categories to use in the final year of the evaluation. For the present blocking analyses, however, only the funding variables were finally used. These analyses are reported below.

a. Formation of Funding-Related Blocks

To assess possible differential program effects associated with different amounts of regular, supplemental, and ESAA funds, a series of blocked analyses of variance was performed, using student achievement test score gains, aggregated to the school level, as the dependent measures, and using the funding data as blocking factors. There were four blocking factors: (1) the amount of regular per-pupil district funds allocated to the schools, (2) the total amount of ESAA funds per participating student allocated to the treatment schools, (3) the total amount of supplemental per-pupil funds (including ESAA) allocated to the treatment school, and (4) the differences between treatment and control schools in total amount of supplemental per-pupil funds received by each school. The fourth factor yielded categories where (a) the treatment school received considerably more supplemental money than the paired control school, (b) both schools received nearly equal amounts, and (c) the treatment school received less total supplemental money than the control school. All funding figures were based on standardized per-pupil expenditures as described in Chapter V.

b. Results of Blocking Analysis

The analyses examined the significance of the block-by-treatment interactions in each of the analyses of variance, using funding as a blocking variable and school-level achievement at a particular grade as the dependent variable. A statistically significant interaction would indicate that there were differential effects of treatment for different funding levels. Subanalyses or visual inspection could determine the source of this interaction (e.g., a significant treament effect only in districts where the regular district expenditures were high).

Of the many analyses that were conducted using funding-related blocks, the number of statistically significant results was at the chance level. The few significant interactions were not individually interpretable, nor did they form consistent or meaningful patterns.

It is important to note that 20% to 25% of the districts in each analysis of the fourth blocking variable (treatment-control differences in total per-pupil funding) fell into the category where control schools received more total per-pupil supplemental funding than did their treatment counterparts. The presence of districts in this category is further evidence of a diluted treatment-control distinction.

2. ANALYSIS OF IMPACT USING SCHOOL CLIMATE AS A COVARIATE

Use of analysis-of-covariance techniques is based on the assumption that much of the error in experimentation results from variables that are highly correlated with the dependent variable and differentially distributed in experimental groups. For example, evaluation of the effects of instruction on achievement is made more difficult by the relationship between this variable and the ability levels of the various experimental groups. Variability in ability among experimental groups increases variability in performance. Furthermore, if the ability level is higher for some groups than for others, the effects of the independent variable may be obscured or spuriously enhanced. The analysis-of-covariance technique allows one to adjust the dependent measures for the contribution of the concomitant variable (e.g., ability level.)

As indicated earlier, many analyses were conducted that adjusted the student dependent measures for students' backgrounds, before aggregation to the school level. Results of these analyses did not differ meaningfully from those conducted on raw gain scores. At this point, it was decided to perform further adjustments, using school climate as the covariate. It was felt that students' perceptions of the desegregation-related climate in which learning was to occur could significantly affect their receptivity to instruction and their general motivation to learn. In these new analyses, the covariate was defined by aggregation of individual students' pretest school climate indices to the school level; the reason for this aggregation was that perceived school climate is more a property or characteristic of the school than of individuals. Separate analyses were performed using each SCQ index as a covariate for each achievement outcome and then using all indices combined as covariates for each achievement outcome.

a. Results

It was hypothesized that positive school climate would facilitate learning, but actual results were equivocal and inconsistent. At the school level the climate scales were related to achievement gains negatively more often than positively, but there was no apparent consistency across grades within an evaluation sample in the relationship of either index with those gains. Possibly the most interesting finding in the covariate analyses was that the significant negative program effect (in favor of control schools) on reading and math outcomes in the Pilot fifth-grade sample disappeared when gains were covaried on either one or both of the school climate indices. This was not the case of a barely significant value becoming just insignificant; the F-values for the test of treatment effect were reduced substantially below the significance level, particularly in mathematics. The full ramifications of these findings, particularly the inconsistency of the patterns of relationship, warrant further investigation, and will be explored in greater detail in the analysis of the third-year and combined second- and third-year data.

D. ANALYSIS OF ACHIEVEMENT TEST GAINS IN ESAA-ELIGIBLE SCHOOLS (TREATMENT PLUS CONTROL)

As in the first year, analyses were performed to investigate the overall achievement gains of students in ESAA-eligible schools. The reason for combining treatment and control schools in these analyses is that ESAA funding in treatment schools may have led indirectly to enhanced total funding in control schools as well, perhaps by allowing districts to focus increased amounts of non-ESAA supplemental funding in the control schools.

Such a readjustment of supplemental funds by the districts would not be at all surprising, since the pairs of schools subsequently assigned to treatment and control conditions were originally selected on the basis of identified academic needs. Furthermore, as noted in Chapter V, there was little or no difference in funding allocations of treatment and control schools for activities directly related to reading and math instruction; this finding seems inferentially to support the contention that the award of ESAA funds to the sample districts may have had indirect financial benefits to the control schools as well as the treatment schools.

In the analyses reported below for combined treatment and control schools, only achievement test score outcomes were used, as those scores could be compared with benchmark data available from the test publishers' normative tables. Since no benchmarks were available for the School Climate Questionnaire data, those data were not considered.

1. OVERALL STUDENT ACHIEVEMENT TEST GAINS IN YEAR TWO

One important analysis of the overall achievement test score data is descriptive; it attempts to specify the achievement level of ESAA-eligible students at the beginning of Year Two, and the gains made by those students during the school year. An important set of benchmarks for assessing the observed score can be derived from the test publishers' normative data, based on the national standardization study of the measures. Table IX-12 presents the mean raw scores for all students in the second-year cross-sectional impact samples, for pooled treatment and control schools. The tabled data show the percentile equivalent of each raw score mean in the national norms, and the grade equivalent of the raw score mean based on those norms. No percentiles or grade equivalent scores are presented in conjunction with the Basic Secondary reading scores, since no differentiated (beginning and end of school year) norms are available for the measure used.

The raw scores shown in Table IX-12 indicate how much gain, in actual numbers of items, was achieved by sample students. The percentile and grade equivalent values indicate sample students' standing in relation to the national standardization sample. Immediately evident are the depressed entry levels, in terms of both percentile ranks and grade equivalents. Mean performance was generally in the bottom third of the national distributions, and was considerably below projected grade-equivalent expectations. For example, the mean for Pilot fifth-grade reading and mathematics pretest achievement would place a student with these same scores at the 16th and 13th percentiles, IX-12. ACHIEVEMENT TEST SCORE SUMMARY FOR STUDENTS IN YEAR TWO CROSS-SECTIONAL SAMPLE

Program	Grade	Mean Raw Score		Percentile* Equivalent of Raw Score		Grade Equivalent* of Raw Score	
		Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Reading							
Pilot Elementary	3	40.6	44.6	25	18	2.6	2.5
	4	23.7	26.5	18	18	2.6	3.0
	5	28.3	30.7	16	13	3.1	3.4
Basic Elementary	3	49.6	51.3	37	24	2.6	2.7
	4	20.1	31.8	31	28	3.2	3.6
	5	36.1	37.9	29	24	4.0	4.2
Basic Secondary	10	47.3	47.6	-	-	-	-
	11	54.9	54.9	-	-	-	-
	12	57.4	57.5	-	-	-	-
Mathematics							
Pilot Elementary	3	50.4	59.4	14	12	2.1	2.4
	4	23.6	27.7	17	15	3.0	3.3
	5	30.5	33.5	13	12	3.5	3.8
Basic Elementary	3	56.6	64.8	22	18	2.4	2.7
	4	27.3	31.2	24	19	3.2	3.5
	5	35.4	37.4	20	16	3.8	4.0
Basic Secondary	10	44.4	46.5	23	20	8.1	8.4
	11	50.8	51.6	25	23	8.9	9.0
	12	49.5	51.1	19	19	8.7	8.9

*Not applicable for Basic Secondary reading scores.

respectively, of the national distributions. If a student starting at those points gained as much as the average gain of all Pilot fifth-grade sample students, he would be placed at the 13th and 12th percentile positions for reading and math at posttest. Thus, his position relative to the national normative distributions would have deteriorated somewhat.

Table IX-13 provides a comparison of achievement test performance between the Year One and Year Two cross-sectional samples. Table entries are the percentile equivalents of the mean scores, and represent two noteworthy patterns. First, pretest performance levels are very similar in each of the two years, indicating entry-level achievement similarities. Second, Year Two posttest percentiles are considerably lower than their Year One counterparts, particularly for the Basic Elementary sample. This pattern reflects the generally lower gains observed in all samples in the second year. While students, on the average, tended to maintain their percentile positions during the first evaluation year, smaller gains observed in the second year tended to place them lower in the normative distributions at posttest than they had been at pretest.

It is extremely important that considerable caution be exercised in interpreting these results, because the benchmark data, i.e., the publishers' normative tables, include interpolations for other than end-of-year performance. These interpretations are based on apparently untested assumptions of linear growth over the school year. Furthermore, the original raw score distributions have undergone considerable manipulation in the process of obtaining smoothed normative tables. Therefore, there can be some amount of error in determining the percentile rank and/or grade equivalent of a particular score, particularly the pretest scores. The direction and size of such errors is wholly unknown. Despite these methodological constraints and cautions, however, it would seem valid to conclude that students in the ESAA evaluation samples had depressed levels of initial achievement and relatively low gains during the instructional period.

2. COMPARISON OF SCHOOL-LEVEL GAINS WITH GROWTH CRITERIA

Analyses presented in this section address the question of whether gains in the sample schools (treatment and control) were larger than might have been expected in schools having large concentrations of disadvantaged and academically needy students. The difficulty in answering this question, as in the first year, is the establishment of some criterion of "expected" gains against which observed gains should be compared. In particular, there is no general agreement as to how allowance should be made in these expectations for the economic and educational deficits of the sample students. Here we have not attempted to account for these deficits, but have set a criterion that takes into account previous performance, and that will be considered stringent by those who feel that some adjustment of expectations is warranted.

To take advantage of the longitudinal nature of this study, two definitions of the gain criterion are presented. One definition is based on the pretest

TABLE IX-13. COMPARISON OF YEAR ONE AND YEAR TWO ACHIEVEMENT TEST SCORE PERCENTILE EQUIVALENTS

Program	Grade	Year One Percentile		Year Two Percentile	
		Pretest	Posttest	Pretest	Posttest
		Reading			
Pilot Elementary	3	20	20	25	18
	4	15	19	18	18
	5	19	19	16	13
Basic Elementary	3	35	34	37	24
	4	28	33	31	28
	5	30	30	29	24
		Mathematics			
Pilot Elementary	3	15	21	14	12
	4	14	19	17	15
	5	18	20	13	12
Basic Elementary	3	22	32	22	18
	4	22	28	24	19
	5	26	30	20	16
Basic Secondary	10	22	22	23	20
	11	22	25	25	23
	12	20	25	19	19

and posttest norms within a single year, and necessitates making certain assumptions concerning the shape of the growth curve over the instructional period. The second definition uses as its basis the empirically determined posttest norms for each year; i.e., it is based on the gains between the Year One posttest and the Year Two posttest. This second definition, being based on a full year and on empirically anchored norm points, can be considered a more reliable assessment of growth in relation to the normative population.

The criterion values were defined in terms of the amount of growth required for an initially low-achieving school to maintain its same percentile rank at posttest, relative to the national norms. At each grade level in each of the Year Two cross-sectional samples, and for each subtest, the percentile rank associated with the sample's mean pretest score was obtained from the test publisher's norm tables. The score associated with the same percentile rank in the posttest distribution was likewise obtained from the tables, and the difference between these two scores was then used as the criterion value against which each sample school's performance would be gauged.

For the analyses of full-year gains, the same procedure was employed, but the reference points were now the Year One and Year Two posttests. Since all analyses were conducted using scale scores, several comparisons and interpolations were necessary to obtain the required scale-score differences. The publishers' norms provided percentile ranks associated with discrete raw scores. When no discrete score fell at the percentile point associated with the pretest criterion, interpolations were made. Once determined, these raw-score points were converted to scale score points, again often requiring an interpolation. All interpolations were linear over the score interval, and high accuracy was maintained.

It is important, in interpreting these criteria and in assessing Year Two achievement gains, to observe the necessary cautions implied in the construction of the criterion. The metric properties of these score differences are wholly unknown, and the criterion-related difference values should be viewed simply as crude indicators of amount of expected growth. Any confidence in such findings must depend on consistency of patterns over different grade levels and over related subtest measures, rather than on any presumed precision in a particular "expected" growth value. Thus, one may be able to obtain a reasonable answer to the question, "Did a large number of schools exhibit average performance greater than the criterion?" but not to the question, "Did exactly 75% of the schools exhibit precisely one year's worth of growth during a year of schooling?"

a. Analytic Technique

Once the effectiveness criterion was established, one serious methodological issue remained in attempting to evaluate the success of individual programs (or groups of programs) in meeting the criterion. This is the issue of spurious within-group differences when multiple comparisons are made. In addition, it was desirable to make some statement of the confidence one might have in any particular observed gain.

The approach in analyzing these data derives from the Bayesian methodology. The specific methods used in the present analysis were provided by Novick, Wang, and Isaacs.* These techniques are especially helpful in making inferences about the success of a particular compensatory program when many individual program comparisons are being made, i.e., in dealing with what the research methodology literature calls the "multiple comparisons problem." Briefly, the multiple comparisons problem arises when it is desired to compare observed performance against performance for a large number of programs and when the number of observations for any one comparison is relatively small. In such situations, estimates of these individual program effects are imprecise, and apparent differences between programs (schools) may be found when those differences have occurred by chance and do not represent actual program effects. The Bayesian techniques employed here, termed m-group analysis, substantially increase the precision of the estimates because they use not only the direct information obtained from the observations in that particular unit (e.g., in a grade level within a given school within a program type), but also collateral information (performance of grade-level cohorts in other schools in the same program). The net effect of the Bayesian approach is a "pushback" of the individual estimates toward the overall mean in a manner analogous to using regression estimates of true score in place of observed scores in classical test theory. The Bayesian techniques provide estimates of average growth and associated variances as well as estimates of individual program effects.

The model for this analysis assumes that for each student, testing occurs at two different points in time. The means for a school on these two test administrations can be denoted as μ_B and μ_A, respectively. The primary concern is with the difference $\Delta = \mu_A - \mu_B$, the average difference between the two test scores. If this value is large with respect to some criterion Δ_0, then it may be concluded that some gain has occurred. The true value of Δ cannot be known, but by using a Bayesian analysis, prior information can be combined with sample information to provide an a posteriori probability distribution for Δ. Then the a posteriori probability that $\Delta > \Delta_0$ (that the gain is greater than the stipulated criterion) is computed. If this probability is greater than .50, one might cautiously suggest that instruction has been effective in this school. If the probability is greater than .90, then one can conclude with much greater confidence that on the average, instruction is moving children past the growth interval required to meet the criterion.

b. Results

Using the methods and criterion described above, the mean school gain was analyzed for each school in treatment-control pairs for each evaluation sample, grade level, and subtest. These analyses sought to determine whether the average performance in a given school was sufficient to meet the criterion developed for individual student scores. Certainly, if a school met this criterion (on the basis of average performance), then effective instruction might be assumed to have taken place. The tables in this section describe the percentage of schools in each of the analysis groups whose mean achievement gain met or exceeded the criterion. The first column under the criterion heading gives the observed percentage of schools meeting the criterion; the second, labeled, "P >.90", indicates the percentage of the total number of schools whose total gain was sufficiently larger than the criterion so that, even given instability in the estimation of the means, one could have 90% confidence that the observed gains really exceeded the criterion. Any probability level could, of course, have been chosen. However, for use with educational programs, a 90% level of confidence in the efficacy of an instructional program would seem to be quite conservative without being extreme. (In other settings this value might be adjusted for decision-making purposes based on the cost of programs, monies available, or the importance of the consequences of program success or failure.)

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*Novick, M. R., Wang, M. and Isaacs, G. L. Bayesian Data Analysis for the Evaluation of Compensatory Education, Combined ESAA Pilot and Basic Program Evaluations, Final Study Design Vol. II, TN-5236/007/01, System Development Corporation, October 1975.

(1) Gains During Second School Year

(a) Pilot Elementary Schools

For Pilot Elementary schools (see Table IX-14), the results for the cross-sectional sample closely paralleled those obtained in the first year. In reading, fourth-grade gains met criterion in a larger percentage of schools than did gains at the third or fifth grade. Gains in mathematics met criterion in smaller percentages of schools as grade level increased. In general, between one-fourth and three-fourths of the schools exhibited average gains that would maintain relative positions in the national distributions. Overall, therefore, gains were slightly above what one might expect for severely disadvantaged students, particularly in the mathematics area. The tendency for the percentage meeting the criterion to drop with increasing grade level in the mathematics area seemed to corroborate the observation of other studies that disadvantaged students typically fall further and further behind with each grade-level increase.

(b) Basic Elementary Schools

The results for the Basic Elementary schools showed a pattern almost identical to that for Pilot students. In both samples, gains in mathematics scores were more encouraging, particularly in grades three and four, than gains in reading. Possibly, short-term gains in mathematics skills were more amenable to the effects of formal instruction than were gains in reading. Considerable incidental learning of reading would tend to make the direct effects of instruction harder to observe. That the incidental learning is probably strongly related to socioeconomic status (via reading materials in the home, increased home-based achievement motivation, and related variables) argues against finding significant reading gains for disadvantaged students.

Because overall gains were somewhat lower, on the average, for students in the Basic Secondary sample in the second year, the percentages of schools meeting the criteria in both reading and mathematics were somewhat lower than in Year One.

TABLE IX-14. PERCENTAGES OF SCHOOLS MEETING OR EXCEEDING ACHIEVEMENT GAIN CRITERION: SECOND-YEAR CROSS-SECTIONAL SAMPLE*

Program	Grade	Number of Schools	Percentage of Schools Maintaining or Exceeding Pretest Percentile	
			Percent Observed	Percent P >.90
Reading				
Pilot Elementary	3	30	37	17
	4	40	68	35
	5	40	32	8
Basic Elementary	3	64	25	3
	4	68	68	29
	5	66	23	3
Mathematics				
Pilot Elementary	3	30	87	63
	4	40	72	45
	5	40	72	48
Basic Elementary	3	64	92	75
	4	68	72	35
	5	66	48	32
Basic Secondary	10	40	22	10
	11	40	30	10
	12	40	42	12

*No results are reported for reading achievement at the secondary level because the achievement measure used has norms available for only one point in the school year.

(c) Basic Secondary Schools

In the Basic Secondary sample, where a criterion can be defined only for the mathematics outcome since no pre- and posttest norms are available for the reading outcome, observed gains were smaller than in Year One, and considerably fewer schools met the growth criterion.

(2) Full-Year Gains (Year One Posttest to Year Two Posttest)

Results of the analyses of full-year gains relative to stipulated criteria appear in Table IX-15. For both the Pilot and Basic Elementary samples, the percentage of schools in the grade 3/4 sample (i.e., students moving from grade 3 to grade 4 over the two evaluation years) that met the criterion was markedly different than the percentage of schools in the grade 4/5 sample meeting criterion. However, this finding again may be an artifact of the change in test levels between grades three and four, and it is probable that the grade 4/5 results provide a more accurate picture of the longitudinal gains. At the grade 4/5 level, a larger percentage of Pilot schools than of Basic schools demonstrated gains exceeding the criterion in both reading and mathematics. For both samples, greater percentages of schools exceeded the criterion in mathematics than in reading. These results indicate that the sample elementary students gained less than might be expected of their more fortunate age-mates, but perhaps more than would be expected of severely disadvantaged students.

TABLE IX-15. PERCENTAGES OF SCHOOLS MEETING OR EXCEEDING ACHIEVEMENT GAIN CRITERION: TWO-YEAR LONGITUDINAL SAMPLE

Program	Grade	Number of Schools	Percentage of Schools Maintaining or Exceeding Pretest Percentile	
			Percent Observed	Percent P >.90
Reading				
Pilot Elementary	3/4 4/5	20 24	30 50	10 12
Basic Elementary	3/4 4/5	64 64	11 33	3 8
Basic Secondary	10/11 11/12	18 18	6 28	0 0
Mathematics				
Pilot Elementary	3/4 4/5	20 24	40 75	5 46
Basic Elementary	3/4 4/5	64 64	17 58	5 33
Basic Secondary	10/11 11/12	18 18	44 44	28 0

At the secondary level, an attempt was made to form criteria for the reading scales, even though those measures do not have norms differentiated for different parts of the school year. The published norms apply most appropriately to mid-year, when the standardization data were collected. However, for present purposes, the year-to-year values were used as a comparison for our posttest-to-posttest data. In mathematics, performance was somewhat lower than at the elementary grades, with less than half of the schools exhibiting average growth that met the criterion of maintaining or improving percentile rank from posttest to posttest.

E. SUMMARY

Overall, the Year Two impact analyses showed no consistent evidence of statistically significant treatment effects in the sample ESAA sites, either in the cross-sectional sample or in the two-year longitudinal sample. Graphs of treatment and control groups' test performances over the two-year period indicate a slight differential gain in the Basic Elementary sample favoring treatment schools, but analyses of three-year data will be necessary to confirm a consistent pattern. The dilution of the experimental paradigm, as evidenced by relatively small differences in funding levels between treatment and control schools, and by the associated lack of consistent differences in program characteristics, continues to make any expectations of significant treatment effects quite doubtful. In subsequent analysis cycles (Year Three and supplemental in-depth analyses), emphasis may need to be shifted toward more complex analysis of the program characteristics of ESAA-funded schools, and of the relationships of these characteristics to outcomes.

The results of the analyses of overall gains made by all schools (treatment and control) indicated that gains were, in general, somewhat smaller in the second year than in the first year. Bayesian analyses of achievement score gains, relative to the criterion of performance that would maintain pretest percentile positions, indicated somewhat more positive results for mathematics than for reading. Results indicate that ESAA-eligible elementary students may be gaining somewhat more than is typically expected of severely disadvantaged students, but somewhat less than their more middle-class age-mates in the normative populations.

One important result of the Bayesian analysis was the identification of a pool of schools meeting some criterion of educational success. This pool then became the basis for the selection of schools for further, in-depth study. Such study and analysis, it is believed, will lead to the identification of the particular components, or combinations of components, that make an instructional program effective. The particular sites selected from this pool were determined on the basis of factors such as seeking a balance of Pilot and Basic programs, and a concern for studying both successful mathematics and successful reading programs. The in-depth study of successful sites is described in detail in a separate report, An In-Depth Study of Emergency School Aid Act (ESAA) Schools: 1974-1975.

CHAPTER X

RELATIONAL ANALYSES

A. INTRODUCTION

This chapter describes relational analyses of data collected in the second year of the ESAA evaluation. These analyses, like the corresponding first-year analyses, were non-experimental in nature; that is, they were not based on comparisons of the randomly assigned treatment and control schools within districts, but instead cut across both categories of schools. Their purpose was to determine relationships among program characteristics (regardless of funding source), student characteristics, and outcome measures--in short, to discover what types of school programs were most effective for what types of students. The relational analyses, in contrast to the more general descriptive analyses reported earlier in this document (Chapters III through VIII), applied exploratory procedures usually involving more complex interactions among students, program, and outcome measures. They also differ from the experimentally-based impact analyses (Chapter IX) in that the relational procedures examined a wider range of possible interactions, but at some cost in generalizability of the findings. Details of the relational analysis methodology and results of the relational analyses are discussed in later sections of this chapter.

The Year Two relational analyses had two primary objectives in common with the first year's analyses. The first objective, based directly on the study's original Statement of Work, was to "examine the interrelationships between input, process, and output variables to determine which variables can be manipulated to improve program impact." The second objective was to ascertain whether relational or exploratory analyses carried out primarily at the student level could elaborate or explicate results found in school-level analyses of program impact. Implicit in this objective was an assumption of many educational researchers that much of the variability in student outcomes is attributable to within-school and within-classroom differences in the action of input and process variables. The third major objective of the relational analyses was new to the Year Two Report; it centered about the longitudinal impact of the ESAA programs. Specifically, this objective was to identify components of the ESAA programs that might show meaningful relationships to student outcomes only over a longer time span than was covered by the first year of program implementation.

Relational analyses for the Year Two Report are considerably expanded over those of the first year. This expansion results both from the availability of new types of data in the second year, and from the use of additional statistical techniques. Discussions of the analytic procedures, and results of those procedures, are organized into two major sections according to the samples of schools and students being examined. Section B describes relational analyses involving the Year Two cross-sectional sample, i.e., all schools and students from whom second-year pretest and posttest data were obtained. Within Section B, a further distinction is made in describing results of student-level analyses (i.e., analyses using individual students as the unit of analysis) and school-level analyses (i.e., analyses using data collected at, or aggregated to, the school level). Student-level analyses include regression analyses relating various program and background variables to achievement test outcomes, and also to outcomes measured by the School Climate Questionnaire (SCQ); the latter instrument, of course, was not used in Year One. School-level analyses include a set of canonical correlations relating school and district-level activities concerned with desegregation to classroom and student outcomes. Also included are analyses examining interactions between school expenditures and resource allocations, and student achievement outcomes.

Section C is concerned with relational analyses involving the longitudinal sample, i.e., schools and students participating in the study both years. In this section, regression analyses are used to explore relationships among program, background, and outcome variables. The final section of this chapter, Section D, is an overall summary of the second-year relational analyses.

B. ANALYSES OF YEAR TWO CROSS-SECTIONAL SAMPLE

Analyses discussed in this section examine relationships between program/background variables and student/school outcomes in the second evaluation year (1974-75). The sample used in these analyses included all students for whom Year Two pretest and posttest achievement scores were available. There were 13,250 students in the combined (Basic and Pilot) elementary samples, and 4,162 students in the secondary school sample. The breakdown by program and grade was as follows:

Sample	Number of Students
Pilot Grade 3	1,388
Pilot Grade 4	1,695
Pilot Grade 5	1,718
Basic Grade 3	2,657
Basic Grade 4	2,887
Basic Grade 5	2,907
Basic Grade 10	1,592
Basic Grade 11	2,437
Basic Grade 12	1,133

The different analyses reported here were based on various numbers of students, because of missing cases for certain variables required by some analyses but not by others. On the average, only about five percent of the cases (students) had to be excluded from any given analysis because of missing observations; the analytic sizes were kept high for most variables by the insertion of mean values for missing observations.

1. STUDENT-LEVEL ANALYSIS

Analyses discussed in this subsection are intended to help identify important interactions occurring at the individual student level. They seek to capitalize on and to explicate relationships among program, background, and outcome dimensions within schools and, indeed, within classrooms. For this reason, all data used in these analyses were either collected originally on individual students or, in the case of certain program data, were disaggregated to the student level for analytic purposes.

a. Methodology

(1) Definition of Variables

Most of the variables used in the first year's relational analyses were again used in the student-level analyses of the Year Two cross-sectional sample, although there were also several new variables in connection with the analyses of school climate outcomes. It may be useful, therefore, to summarize the process used in Year One to select and/or define variables for the relational analyses.

Several steps were taken in Year One to select the most useful subset of items from various instruments and to form composite variables from the items. Those steps involved careful screening of elements from the 3000-plus items in the original data set, so as to retain those items that would be most useful and relevant to the study objectives. Efforts were made to select items that would (1) be readily interpretable for policy decisions and (2) reflect manipulable school, program, and process variables that might be expected to have direct impact on student outcomes. In many cases, two or more related items were combined into new composite variables, so as to help reduce the total number of items to fewer and more interpretable dimensions.

Two basic procedures were used in selecting items and in forming composite variables for use in the exploratory analyses. One approach, used in the early screening stages, involved a rational examination of all items to determine their relevance to the major evaluation issues and to ascertain which groups of items appeared to be tapping the same underlying dimensions or variables. Results of earlier studies were also used in this phase to pinpoint variables that were most likely to show significant relationships to student achievement. The second general approach was empirical, and involved preliminary correlational and factorial analyses to determine which items appeared to be related to each other and to achievement.

Since the questionnaire data were largely categorical or, at best, ordinal in nature, single items were coded to define either dummy variables or ranks. Multiple-item composites were expressed as proportions, as net frequency counts of certain item responses, or as average ranks or rank sums of items representing a dimension or logical set.

The following paragraphs describe the categories of variables used in the two sets of relational analyses--one set of analyses examining student achievement outcomes and the other examining school climate outcomes.

(a) Variables in Analyses Related to Achievement Outcomes

Six categories of variables were used in these analyses: individual student background characteristics, individual teacher characteristics, instructional program characteristics, contextual characteristics, and dependent (outcome) variables. Each category is discussed below.

Individual Student Characteristics. Among variables expected to have the most consistent relationships to learning were several characteristics of the student himself. These included two major sociodemographic characteristics: ethnicity and socioeconomic status. The student's academic orientation (e.g., his liking for school, his feelings about the importance of good grades, and his personal educational expectations) was also examined, as were certain psychosocial characteristics such as internal/external locus-of-control and the nature of the student's interaction with his peers. The teacher's educational expectation of the student was treated, for purposes of the present analyses, as a student characteristic. Measures of the educational attainment of the student's parents were also used. For the elementary student, these data were obtained from teacher reports, whereas at the secondary level they were reported directly by the students.

Individual Teacher Characteristics. Selected characteristics of the student's teacher defined a second set of independent variables. These included, for example, the teacher's general training and teaching experience; his specialized inservice training in reading or math; and indicators of his effort and style, such as the number of resources generated by the teacher to supplement instruction and the flexibility of his teaching approach.

Instructional Program (Classroom) Characteristics. A third category of variables included certain characteristics of the instructional programs used in reading and mathematics, many of which were described in Chapter VI. Potentially important variables were the total amount of time spent in reading and math activities (estimated by average total weekly exposure in reading and math) and the percentage of time spent in each component activity in reading and math instruction. Another set of variables examined here related to program focus, defined in terms of amounts of emphasis on particular activities in reading and mathematics.

Contextual (School and District) Characteristics. The broader context of the student's learning environment was defined by school- and district-level variables. Sociodemographic characteristics examined here included minority percentage in the school and overall student-body SES level, as indicated by the principal's estimate of the percentage of students eligible for Title I funds. Also of interest were the teacher/pupil ratio in the school, the number of specialized reading and math personnel relative to total staff size, and the school size as characterized by the total enrollment.

Other contextual variables used in the exploratory analyses were characteristics related to desegregation programs and racial climate of the schools, such as the extent of busing in the district and the extent of disruptions having racial/ethnic origins. The degree to which districts promoted desegregation programs was indicated by a frequency count of district activities such as media presentations, public meetings, and staff meetings. Pretest and gain scores derived from the School Climate Questionnaire were also used as independent variables, as it was felt that these measures might reflect a broad spectrum of environmental conditions in the schools that might affect achievement. These variables are discussed more fully below, in the listing of variables used for analyses of school climate outcomes.

Funding variables were a particularly important aspect of the district/school context, since they comprised a major set of variables in the evaluation design. School-level funding variables were defined in terms of total supplemental dollars per pupil spent in reading and math. District cost data were used to define regular dollars-per-pupil expenditure variables.

Dependent Variables. Residualized total scale scores from the reading and mathematics achievement tests were the dependent variables for the overall relational analyses. At the elementary level, the reading raw score was obtained for performance on the entire reading section of the California Achievement Test, Level 2 (grade 3), and Level 3 (grades 4 and 5). At grade 3, the mathematics test was composed of the items from the computation and concepts subtests, Level 2, omitting the problems section of the latter subtest. For grades 4 and 5, the mathematics test consisted of items from the computation subtest and the concepts subtest, Level 3, omitting the 20 items dealing with fractions in the computation subtest.

At the secondary level, the reading scores were based on performance on the Iowa Silent Reading Test, Level 2. The reading raw score was a total of raw scores on the Vocabulary and Reading Comprehension subtests. The entire mathematics test of the California Achievement Test, Level 5, was used to obtain the mathematics score utilized in these analyses.

Total raw scores were converted to total scale scores, employing the norm tables furnished by the test publisher. This conversion allows direct comparison of results across test forms and test levels. The total score was used rather than subtest scores because it required fewer analyses, while still providing adequate information.

The decision to use residual scores in the regression equations was based on preliminary empirical investigations indicating that the pretest scores would account for most of the variance in the posttest scores. It was clear that the pretest would be the best single predictor in the regression equations, yet its inclusion would severely limit the interpretability and usefulness of analytic results. In particular, it was feared that the strength of the pretest variable might mask the effects of other possible predictor variables.

For these reasons it was decided that the criterion measures for the cross-sectional analyses of achievement outcome should be a type of change score that eliminated or took into account the effect of the pretest score. Posttest scores residualized on pretest scores, and simple gain scores (posttest minus pretest scores), were the two transformations that met these requirements and were feasible, given the large number of analyses to be performed.

Of the two alternatives, residualized scores were used, since they had been used for the cross-sectional analyses in the first year's report.

Regression analysis was used to calculate the residual scores. Two regression analyses were performed at each grade level, one for each dependent variable (reading and mathematics). The total reading and total math scale scores from the achievement pretests were used as predictor variables, and the posttest total scale scores were used as dependent variables. The predicted posttest total scale scores resulting from the regressions were then subtracted from the corresponding actual posttest scores to produce the posttest residual scores. Residuals produced by this procedure can be considered to have had the effect of the pretest score levels removed.

(b) Variables in Analyses Related to School Climate Outcomes

The independent variables used in the cross-sectional regression analyses of the SCQ scales were among those originally developed in preparation for the first year's analyses. Emphasis was placed here on variables believed to have interpretable relationships with the student attitudes and behaviors that the SCQ was designed to measure. The variables, like those used in the analyses of the achievement outcome, can be categorized as related to the student, the teacher, the program, the school and context, and the funding. Each category is described below. (Table H in Appendix 20 contains a list of all the variables used, with their mnemonics.)

Individual Student Characteristics. Several variables characterizing the student's feelings about himself and his school were expected to be meaningfully related to the school climate outcomes. These included variables reflecting the student's sense of belonging in the school, his expressed educational expectations, and a measure of his perception of locus-of-control. Another variable in this group was an additive scale reflecting the student's perception of whether the teacher's behavior was supportive. Also included were several variables characterizing the ethnicity and sex of the student, and indicating his socioeconomic status.

Individual Teacher Characteristics. Among variables in this category were several that reflected the style of teaching as indicated by the teacher, and several reflecting the teacher's views toward certain educational practices (e.g., compensatory education programs and cultural-enrichment activities). Also included was an indicator of the teacher's view on integration/civil rights issues. Teachers' ethnicity could not be used because data on ethnicity were missing in almost 40% of the cases.

Instructional Program (Classroom) Characteristics. Variables in this category included indicators of the amount of school time given to cultural enrichment and intergroup activities, and to reading and mathematics instruction. Other variables indicated the amount of interracial mixing during class activities and recreational activities, and the extent of resulting conflict, if any.

Contextual (School and District) Characteristics. The general environment of the students' school experiences was defined by school- and district-level variables. These included items indicating the enrollment of the school, the percentage of minority teachers in the district, and the proportion of disadvantaged students in the school.

Also included in this category were variables that reflected staff attitudes and actions. Among these were teachers' reports on the extent of interracial mixing among the teachers in the teachers' lounge, and on the attitudes of minority and non-minority teachers toward school desegregation. Variables from the Principal Questionnaires included items on principals' attitudes toward busing and school desegregation, and some indicators of the principals' views on the value of compensatory programs. Other variables in this category were indicators of school activities such as assemblies devoted to desegregation issues or to current events concerned with race or ethnicity. From the District Superintendent Questionnaire, items were used indicating the attitudes of the superintendent and the school board members toward school desegregation. Where possible, all variables were coded so that the higher values on any given variable were in the direction thought to be favorable to a positive school climate.

Dependent Variables. The dependent or criterion scores used in the cross-sectional school climate analyses were a subset of the school climate scales. This section will describe only briefly the scales used in these analyses. The measures are described more fully in Chapter IV.

At the elementary level, two scales were used. The first scale was an indicator of the teacher-student interaction, and was developed from items in which the student indicated the frequency of teacher behaviors favoring the student. This includes actions such as complimenting the student on his work and assigning him minor classroom tasks (e.g., collecting papers). The second scale was an indicator of the student's perception of his treatment by the school principal. A separate analysis was performed for each scale, with the posttest measure on that scale as the criterion dependent variable. The pretest measure and both scales were used in each of these analyses as potential predictor variables.

Four school climate scales were used in the analyses of the secondary school samples. The first scale, similar to the first in the elementary sample, was a measure of teacher-student interaction. Items in this scale at the secondary level were again indicators of favorable teacher behaviors directed personally toward the student. The second climate measure, called Treatment by School Administrators I, was an indicator of the student's perception of fair and favorable treatment from the principal and vice principal of the school. The third scale, Treatment by Administrators II, indicated the student's perception of how much interest the counselors take in him and how favorably they behave toward him. The fourth and final scale used at the secondary level was an index of students' perceived alienation. The remaining two secondary school climate scales were not used in these cross-sectional analyses because they were unavailable for a substantial proportion of the student sample.

A separate analysis was run for each of the four scales. The posttest measure on each scale was used as the dependent variable, and the pretest measures on all four scales were included as independent variables in each analysis.

(2) Regression Procedures

The statistical method employed in these overall cross-sectional analyses was linear multiple regression. The multiple regression technique was chosen for the analyses because of its traditional role in this type of exploratory analysis, and because of the straightforward interpretability of the results. Specifically, the results reported in this chapter were obtained by means of a stepwise multiple regression procedure designed to build the final regression equation through a series of steps, each of which adds one independent variable to the equation. The independent variable added at each step of the procedure is the one that contributes most of the predictability of the equation. The advantage of the stepwise regression is that it yields a good approximation of the "best" set of predictors.

Several cautions concerning the use and interpretation of stepwise multiple regression should be mentioned. One assumption of the multiple regression model is perfect measurement in the predictor variables, i.e., that no error of measurement exists in the data. When this condition is not met, the calculated coefficients tend to be underestimates of the parameter values; that is, the calculated contribution of a predictor variable to the variance of the outcome measure may be less than its true contribution. In the present case, since measurement error definitely exists, the obtained regression coefficients are conservative estimates of their true values.

A second factor that may have had an effect on the calculated regression results was the way in which missing data were handled for these analyses. The mean value of the sample was substituted for the missing values for those variables where the mean was an interpretable statistic. This procedure tends to reduce further the magnitude of the calculated regression coefficients, and makes the estimation procedure even more conservative.

While the two factors cited above tend to make the regression results in these types of analyses underestimates of any underlying relationships, other limitations of the stepwise regression technique may have the opposite effect. The predictor variables selected in the regression steps, and the order of those steps, are a function of the complete set of observed correlations among the variables. A set of spuriously high or low correlations can have an effect on an early step in the stepwise procedure that may be magnified in later steps. Hence, the final results of a stepwise regression analysis may be due to covariations in the data that are the result of measurement or sampling errors. Therefore, no single analysis, or study, can be considered to give conclusive evidence for the existence or the non-existence of a relationship. A given result can be established only by confirmation of the result through independent studies. While these limitations are true to some degree for all types of studies and all types of analytic techniques, they are more serious when, as in the present case, stepwise regression is used with non-experimental data. An ameliorating factor in the analyses reported here, however, is that each analysis is repeated on several samples that, within the target universe of the study, are independent. A consistency of results across such samples, therefore, could furnish some supporting evidence. For this reason, most of the analyses reported in this chapter are concerned with patterns of relationships found in different samples or subsamples.

In interpreting the result of a stepwise regression analysis, a related problem must be kept in mind: The final equation may contain only a small fraction of the potential predictors examined by the procedure. In such instances, the usual interpretation of statistical significance is badly distorted. Again, only through a repetition of studies can a particular result be confirmed.

Finally, the multiple regression technique used here was a linear model, and such a model can explain only linear relationships. While linear relationships are extremely useful in summarizing data, and may be the largest component of most behavioral relationships, this by no mean excludes other components. In fact, there is substantial evidence in this study that curvilinear relationships exist between the predictor variables and the criterion variable in the achievement analysis. The effect of this curvilinearity is to lower the precision of the obtained regression results. More sophisticated methods of analysis exist to deal with such situations, and these are being explored. However, because the multiple regression approach is more intuitively meaningful and interpretable, it was believed that this approach would provide the best tool for the initial exploration of the data.

To account, at least in part, for the non-linearity in the relationship between pretest and posttest measures, and the potential interactive effect that this non-linearity might have introduced in many of the equations, the analyses examining achievement outcomes were conducted using subsets of students. Based on pretest performance, students were separated into three analysis groups: the highest-achieving 30%, the middle 40%, and the lowest 30%. This procedure permitted the examination of possible interaction effects between independent variables and initial achievement. For example, a variable could have a positive relationship with the outcome for the low group, no relationship for the middle group, and a negative relationship in the high group. This subgroup analysis also recognizes the possibility that certain types of instructional programs or materials might not have worked equally well or in a similar manner for different kinds of students. To identify program variables that may have been important for all students, regardless of initial status, analyses were also performed on the total sample of students.

b. Analysis of Achievement Outcomes

Results of the Year Two cross-sectional analyses of achievement outcomes are presented in Appendix H, Tables H-2 through H-19. For each analysis, a separate table is provided for each combination of outcome measure and evaluation sample. Individual tables give the derived regression statistics for each analysis subgroup within grade level. Values of the Beta coefficient are shown for all cases in which the F-ratio was greater than 3.90 in the final regression equation. The actual values of the Beta weights are also reported. Since the dependent measure was in the form of a residual score, the relative contribution that a particular variable made to the prediction of the outcome measure is roughly indicated by the size of the Beta weight associated with that variable.

The discussion that follows summarizes patterns of significant relationships between independent variables and outcomes, where those patterns show some consistency across grade levels and analysis subgroups. Isolated cases of significant relationship are not emphasized, since such results are too often spurious. Significance levels are not indicated in the discussions of specific relationships, since all Beta values included satisfied the criterion specified above ($F > 3.90$). Results are organized by the major sample grouping (Pilot Elementary sample, Basic Elementary sample, and Basic Secondary sample), and are compared, where appropriate, with results of corresponding Year One analyses.

There are many possible ways of calculating regressions, each differing not only in methodology but in the perspective that it provides on relationships among the variables being studied. In the present evaluation, as in most studies, there does not appear to be any one "correct" way of performing the regression analyses, but rather several logical ways, each with its own advantages and disadvantages. For this reason, three sets of analyses are reported here for the regression of the achievement outcomes of the cross-sectional sample. Two of the three sets differ in technique used to calculate the residualized posttest scores, while the third represents a variation in the method of entering variables into the regression equations. These three approaches are described in the paragraphs immediately below, followed by a discussion of differences in the meaning or interpretation of results that can be obtained using those three approaches. Finally, results of the various analyses are presented.

(1) Types of Analyses

The first set of analyses used residualized posttest scores as criterion variables, with the residual computed from a common regression surface computed for all the individuals within the analysis subsample. For example, a single regression equation was used in this set of analyses to determine the predicted posttest scores for all students in the Basic fifth-grade subsample. The procedures used in obtaining the residual scores in this first set of analyses are those used for the Year One analyses; they produce what are referred to in the following paragraphs as total group residuals.

A second set of analyses for the cross-sectional regressions used residuals based upon within-district calculations as criteria. In these analyses, the students within a given analysis sample, for example the Basic fifth grade, were further classified by the school district they were in. The predicted posttest scores were derived from within-district calculations. A common set of regression coefficients was calculated from the pooled within-district covariance matrices. Then a district regression constant was calculated for each district, using the common regression coefficients and the pretest and posttest mean scores for that district. The residuals computed from these predicted posttest scores are referred to as within-district residuals in the discussion of the results.

The third set of analyses resulted from a modified stepwise regression procedure. This procedure was used in an attempt to provide direct comparisons of Year One and Year Two cross-sectional regressions on achievement outcomes. For each regression equation obtained in the Year One Study, a new regression on the second-year data was run which (1) forced into the equation on the first step all variables with significant Beta coefficients in the first-year analyses, and (2) allowed any of the remaining variables with significant Betas to enter on subsequent steps, according to the usual stepwise procedure. These analyses are referred to as the forced regressions.

In the discussion below, results of analyses based on the total group residuals are first summarized for a given grade/program sample. Then these results are compared with the results of analyses using the within-district residuals and the forced regressions.

(2) Interpretation of Alternative Regression Procedures

Two of the three regression methods discussed here differed only in the procedures used to calculate the residualized posttest scores. As noted earlier, residual scores were used in analyses of the achievement outcomes to adjust for prior differences in student achievement, since the aim of the analyses was to find the variables associated with achievement gains during the 1974-1975 school year. Pretest scores were used as estimates of the level of achievement at the beginning of the year. Calculations were then performed using both pretest and posttest scores to obtain an estimated or predicted posttest score based on pretest values alone. Residuals were the differences between the actual posttest score and the posttest score predicted from the pretest values.

The use of the total group residuals assumes that, for a given analysis sample (e.g., fifth-grade students in Basic programs), the entire set of pretest and posttest scores can be considered to come from a single joint distribution. Thus, it is assumed to be appropriate to use one equation to predict the posttest from the pretest scores. This results in a single predicted posttest score for all students who have the same pretest scores.

The use of the within-district residuals assumes that it is more appropriate to consider the students from different districts as representing distinct populations, differing on pretest and posttest achievement scores. Hence, different equations are used to give the predicted posttest outcome for students from the various districts. One consequence of this approach is that a given student's predicted posttest score, and hence his residual score, is directly affected by the average score for his district. Thus, even if two students had the same posttest score, the student from the district with a higher mean posttest score would have a lower residual score, reflecting the fact that he came from a group with higher expected outcomes.

In interpreting the results of regressions on the two different types of residual scores, the main difference is in the component that has been removed by the adjustments. Adjustments that lead to the total residuals remove the linear component of the pretest scores. This means that the effect of any other variable that is linearly correlated with the students' pretest score is also removed from the posttest outcomes. As an example, if the level of treatment administered to all students (e.g., the number of hours spent in math drill) were a linear function of the students' pretest scores, and if the impact on the posttest scores were a linear function of the treatment, then a regression using these residual scores would show zero coefficients for this treatment as a predictor variable.

By contrast, residuals based on the within-district computations remove all effects linearly related to the mean achievement scores of the district, and all effects that are constant within a district but differ between districts. Thus, if size of a district had an equal effect on all students' scores in any district, then district size would have zero regression coefficients in an analysis using the within-district residuals as criterion measures.

Finally, a brief word is in order concerning the interpretation of results of the forced regressions. These analyses necessarily show results that are similar to the regressions based on the total residuals. However, since the final equations include variables that were forced into the equations but have non-significant and non-interpretable coefficients, the significant coefficients differ from those in the related total residual regressions.

(3) Results

(a) Pilot Elementary Sample

Analyses of the total group residuals suggest a relationship between certain funding variables and achievement outcomes. The most meaningful pattern was between the magnitude of supplemental funds for mathematics instruction and the mathematics outcomes. Moderate-sized and positive Beta coefficients were found at each of the three elementary grade levels. Thus, there is some evidence that students in schools with larger supplemental math expenditures made larger gains in math achievement. By contrast, no consistent pattern of relationships was found between the magnitude of supplemental reading funds and either reading or math achievement.

Amount of regular district per-pupil funds showed few consistent or interpretable patterns of association with achievement. There were some significant negative coefficients relating regular expenditures to mathematics scores, primarily at the third and fifth grades. Similarly, some associations between the regular funds and reading outcomes were negative, but results varied across subgroups and over the three grade levels.

In other analyses using total group residuals, virtually no consistent patterns of relationship were found between the reading and mathematics outcomes and either the program or teacher characteristics. There was a weak trend within the Pilot fifth-grade sample for mathematics achievement to be higher where greater emphasis in math instruction was placed on drill and practice. Also, moderate negative relationships were found between the amount of instructional time devoted to individual tutoring by an adult and the achievement outcomes. This latter pattern was found for several combinations of subsamples and grade levels, and for both achievement areas. A possible explanation is that teachers selected students for tutoring who were known to have the most severe learning problems and to be relatively unresponsive to other instructional means.

For certain subsamples and grade levels, the regression results suggest that non-minority students made larger reading achievement gains than minority students. An opposite but weaker trend was found for mathematics achievement, with some subsamples at the fourth- and fifth-grade levels showing greater gains for minority students.

Finally, the analyses using total group residuals showed a fairly strong pattern of association between the teachers' expressed expectations with regard to the students' future educational attainment, and the reading and mathematics outcomes. At all grade levels, and for virtually all subsamples within grades, students for whom teachers had higher educational expectations tended to make larger reading and math gains. This finding must be interpreted with caution, as the analyses provide no direct evidence concerning causal relationships. Since the questionnaire asking about expectations was administered fairly late in the school year, it is probable that those expectations reflected to a considerable degree the teachers' observations of the students' actual performance over the earlier part of the year. A weaker hypothesis is that there is a "Pygmalion effect"; that is, teachers' pre-judgment of students' learning potential might have affected their handling of the students, and consequently the students' performance during the school year.

Turning now to the regressions based on within-district residuals, fewer significant and interpretable relationships were found in those analyses than in the analyses based on total group residuals; this was to be expected, since the within-district residuals included no intra-district effects.

Results based on the within-district residuals showed few significant Beta coefficients and few interpretable patterns in the analyses of relationships between funding variables and achievement outcomes. This suggests that any association between funding and outcomes in the Pilot Elementary sample was almost completely a district-level effect.

As with the analyses performed using total group residuals, a trend was found for non-minority students to make larger reading gains than minority students. No relationship was found between minority or non-minority status and mathematics outcomes.

Again, there were fairly strong positive associations between teachers' expectations of students' future educational attainment, and the achievement outcomes for those students. Those relationships involved both reading and mathematics gains.

In the Pilot Elementary sample, the results of the forced regression analyses (i.e., analyses that forced into the equations the variables that had significant coefficients in the first year's analysis) showed few of the patterns found in the previous year. In fact, the only strong pattern common to both years was that discussed above, between teacher expectations and student outcomes; again, it should be noted that this relationship probably reflects the teachers' observations of the students' actual performance over the earlier part of the year.

(b) Basic Elementary Sample

Cross-sectional regression analyses of the Basic Elementary samples using total group residuals showed no strong pattern of associations between manipulable variables and the achievement outcomes. There was a weak pattern, observed only in the third-grade sample, in which recency of teacher inservice training in reading instruction was associated with higher reading outcomes. Another marginal pattern found for certain grades and subsamples was a negative relationship between supplemental reading expenditures and reading outcomes.

As in the Pilot sample, non-minority students tended to make larger reading test gains than minority students, while minority/non-minority status was not related to mathematics gains. Also paralleling the Pilot sample findings, Basic Elementary teachers' stated expectations about the students' educational attainments were strongly associated with those students' gains in both reading and math.

Regression analyses of the within-district residuals showed the usual association between teachers' expectations and students' achievement levels. In addition, the analyses showed a positive relationship between recency of teachers' inservice training in reading instruction and student reading outcomes at the third-grade level. The presence of this trend in these analyses, as well as in the analyses using "total group residuals," suggests that the relationship occurred within schools, or certainly within districts, since the within-district residualization procedure effectively eliminated inter-district effects. In any event, there appears to be fairly consistent evidence within the Basic Elementary sample that inservice training may have improved teachers' abilities to give effective reading instruction, and that the recency of this training was an important factor. As noted earlier, however, the regression analyses show only the existence of associations among variables, and any assumption of cause-and-effect relationships must be speculative.

Analyses using forced regressions added little to the findings reported above, and few of the variables showing significant relationships in Year One had significant coefficients in Year Two. The most consistent pattern was, again, the positive association between teachers' expectations and student achievement.

(c) Basic Secondary Sample

Only the results using total group residuals are reported for this sample, as analyses using within-district residuals or forced regressions yielded only subsets of the relationships described below for the total group residuals.

Several important, though only moderately strong, trends were found in the data for the Basic Secondary sample. First, at all three grade levels, mathematics achievement was positively related to amount of instructional time in mathematics, and negatively related to time spent in reading. The positive relationship of math scores to amount of math instruction seems to need little explanation; the negative relationship with reading instruction could conceivably reflect a competition for total instructional time, with increased reading instruction detracting from the time spent on math instruction. Overall, the results suggest that additional instructional time was beneficial to achievement gains, but only in the particular content area being taught.

A somewhat weaker pattern was found between the mathematics teachers' background of specialized training and the mathematics scores of tenth- and eleventh-grade students; at those grades, students of more highly trained teachers tended to make larger gains in mathematics. Also found, quite consistently, was a negative relationship between achievement and teacher/pupil ratio. That is, students in groups with fewer students per teacher tended to make larger gains in both reading and mathematics.

Finally, a moderately strong pattern was found at the tenth and eleventh grades, in which larger reading gains were made by students in districts that undertook more activities designed to facilitate and support school desegregation. This finding is important both because of its clear policy relevance to ESAA-eligible districts and schools and because of its similarity to certain findings in the Year One analyses, although the comparable Year One relationships were at the elementary level. Despite the fact that significant relationships between desegregation-supporting activities and student achievement gains did not occur consistently across different samples and outcome measures, they did occur often enough in both years' analyses to reinforce the Year One Report's speculation concerning possible causal mechanisms. That is, desegregation-supporting activities may have helped to provide an environment that supported positive student attitudes and, consequently, facilitated learning.

c. Analyses of School Climate Outcomes*

(1) Regression Procedures

All of the regression analyses performed on the school climate data used the posttest scores on the scales derived from the School Climate Questionnaire as the dependent variables; the pretest scores on these same indices were included in the set of independent variables.

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*The full set of tables of regression statistics for these analyses is presented in Appendix H, Tables H-21 to H-23.

(2) Results

(a) Pilot Elementary Sample

Since both of the climate scale analyses at the elementary level used one posttest scale score as the criterion and both pretest scale scores as independent variables, it was expected that the pretest performance would be the best predictor. This was found to be so, and is evidence of a measure of predictive validity in the instruments. The data also show evidence of independence between the scales in this Pilot Elementary sample. That is, no pattern of relationships was found between the Teacher-Student Interaction pretest scores as a predictor, and the posttest Treatment by Principal scale as criterion. Further evidence for the independence of the two scales is lack of any predictive power of the pretest score on the Treatment by Principal scale with respect to the Teacher-Student Interaction posttest scores.

A strong positive relationship was found at all grade levels between the student's perception of the teacher's supportiveness and the Teacher-Student Interaction outcome; this relationship undoubtedly results from the presence of similar items in the two scales. More importantly, there was a strong trend for the Teacher-Student Interaction and the Treatment by Principal outcomes to be more positive in cases where the student's liking of school was also positive. This last finding occurred at all three Pilot Elementary grade levels.

Several other important relationships were found in the climate data for the Pilot sample. First, the Teacher-Student Interaction scale values were more positive for students who had higher expectations regarding their own educational futures; by contrast, the *teachers'* expectations for the students' educational attainment were not related to values on the Teacher-Student Interaction measure. One possible interpretation is that the students' own expectations reflected their overall feelings about their relationships to the educational system, and that those internalized perceptions were more important than an externalized assessment (i.e., the teachers' expectations) in determining how favorably the students viewed the teacher-student interactions.

Another finding of interest was the lack of evidence for any relationship between achievement test measures and school climate measures. Apparently the test scores, representing again an external assessment of the students' status in the educational system, were not important determiners of the students' perceptions of school climate.

The Treatment by Principal scale outcome was positively associated with percentage of students bused to the school, but not with the principals' attitudes toward busing or toward integration and civil rights. Though any explanation must be highly speculative, it seems altogether possible that actions (actual amount of busing) spoke louder than words (principals' stated attitudes) in the sample Pilot schools.

Finally, students' perceptions of their treatment by principals tended to be more positive if those students had greater exposure to cultural enrichment activities.

(b) Basic Elementary Sample

Several of the relationships found in the Basic Elementary sample were similar to those for the Pilot sample. On each of the two school climate scales, the pretest measure was the best predictor of the posttest score on that same scale. Also paralleling the Pilot sample results, no consistent relationships were found between the two scales.

Other results consistent with Pilot sample findings were (1) a positive relationship at all grade levels between the students' perceptions of their teachers' supportiveness and the Teacher-Student Interaction scores; (2) a positive association between both school climate measures and the students' liking for school; and (3) more favorable student perceptions of Treatment by Principal for non-minority than for minority students.

One result found much more consistently in the Basic Elementary sample than in the Pilot sample was a strong pattern of negative relationships between the extent of material resources in the students' homes and the two school climate outcomes. That is, students of relatively higher socioeconomic levels tended to report less favorable opinions of their schools' climate. Though it is possible that the less-advantaged students actually had more favorable conditions in their schools, particularly with respect to desegregation-related issues, such an explanation seems improbable. A more credible speculation is that the less-advantaged students had lower expectations for, and therefore greater tolerance of, conditions in their schools.

Greater student exposure to bilingual activities and larger amounts of individual student guidance were both associated with lower levels on the Teacher-Student Interaction scale. A possible explanation is that the same characteristics leading to the students' selection for bilingual instruction or individual guidance (e.g., bi-cultural backgrounds, learning problems) may also have predisposed those students to feel that they were alienated from their teachers and from the schools in general.

c. Basic Secondary Sample

Since four different school climate scales were used at each of the three secondary grades, results of the associated analyses are presented separately for each scale.

Teacher-Student Interaction Scale. Analyses involving the Teacher-Student Interaction outcomes revealed several of the same relationships found for both elementary samples. These included findings that (1) pretest scores were the best predictor of posttest scores, and (2) students' feelings that their teachers were supportive had strong positive associations with measures on the Teacher-Student Interaction scale, as did students' liking for school.

Another finding for the secondary sample was that students with less feeling of alienation (as indicated by the Index of Alienation) had more positive feelings about their teachers, i.e., higher value on the Teacher-Student Interaction scale. This finding seems to give some credence to the hypothesized relationship between students' feelings of alienation and their feelings about the teachers, as discussed above for the Basic Elementary sample.

Treatment by Administrators I. This scale is comparable to the Treatment by Principal scale used in the elementary samples; however, the analysis of this scale for the secondary samples showed no consistent associations with other variables across grade levels, except for the expected association with the pretest measure.

Treatment by Administrators II. Scores on this scale reflect the students' reports on their perceived treatment by school guidance and counseling personnel. A consistent association across grade levels was found only with the corresponding pretest score.

Index of Alienation. Not unexpectedly, students who reported a strong liking for school, and a greater sense of belonging to their schools, also tended to report less feeling of alienation. Also, both the teachers' and the students' educational expectations with respect to the students were negatively associated with feelings of alienation; that is, there was less perceived alienation on the part of students for whom expectations were greater.

Two additional findings are of special interest, as they involve independent variables that might be manipulated by school programs. At the tenth and eleventh grades, reported student alienation was lower for students whose teachers were perceived to be more supportive. Also, less feeling of alienation was reported by students whose teachers had expressed more positive attitudes toward integration and desegregation.

2. SCHOOL-LEVEL ANALYSES

Many important program variables reflecting overall district or school policy may logically be presumed to operate fairly uniformly for all students in a given school. For this reason, analyses reported in this section used schools as the unit of analysis rather than individual students. In the case of program variables, most of the data were collected initially at the school level; student background and outcome data were collected individually but were aggregated to the school level for purposes of these analyses.

Three sets of analyses are discussed. The first set uses a canonical correlation model to examine interrelationship between desegregation-related school activities and measure of school climate. The second set of analyses explores possible associations between school expenditures and students' achievement gains, while the third set attempts to relate resource allocations to achievement.

a. Relationships Between Desegregation-Related School and Staff Characteristics and Non-Academic Student Outcomes

Year One analyses showed a number of fairly consistent relationships between achievement gains and certain desegregation-related attitudes and activities at the district, school, and classroom levels. Furthermore, through canonical correlation techniques, a chain of relationships was found, connecting district and school desegregation-related activities, staff attitudes and interracial activities. The present report has also included evidence on the regression analyses for certain subsamples, indicating better achievement gains where districts undertook more activities designed to support and facilitate desegregation in the schools. It was therefore decided a repeat essentially the same series of canonical correlations as those performed in Year One, to determine whether there were consistencies in the patterns of relationships. Data used for the analyses were those for the Basic third-grade sample students. This sample was selected to maintain comparability with the Year One report, and because of the relatively larger sample size at the third-grade level. Pilot sample data were not used because the desegregation-related variables were inappropriate for the minority-isolated Pilot schools.

(1) Approach

The analyses focused on the student-level impact of school activities concerned with desegregation, and on related attitudes of school authorities. Five indicators of the student's attitude toward education and his school were used as criterion variables.* The first three were (1) the response to an item asking if the student felt that he or she belonged in that school, (2) the score of a six-item composite indicating the extent to which the student expressed a liking for his school, and (3) a variable reflecting the student's expressed expectation of how much additional education he would obtain. The fourth and fifth variables were the two scales for the elementary form of the School Climate Questionnaire. The basic rationale for these analyses was that positive feelings indicated by these criterion variables were desirable outcomes in their own right, and might also be related to other desirable student outcomes, including achievement.

Analysis plans called for a four-step statistical procedure to relate the criterion variables to four other sets of indicators. The first step attempted to relate school administrative practices and actions to desegregation-related teacher attitudes. Specifically, it used canonical correlation procedures to investigate the linear relationship between (1) a set of three indicators of teachers' attitudes toward desegregation issues and (2) another set of indicators of the actions and attitudes of school administrators.

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*A brief description of the construction of each variable or indicator referred to in this discussion is given in Appendix H, Table H-24.

The second step was concerned with interactions between district/school variables and student interracial variables. It examined relationships between (1) the teacher-attitude indicators, plus indicators of the districts' desegregation-related activities and of principals' and superintendents' attitudes, and (2) three measures of the extent of interracial activity among the students.

The third step of the analysis dealt with possible effects of district, school, and student-level desegregation-related variables on student attitudes toward school. It investigated the relationships between (1) the criterion measures of student attitudes toward school and (2) the combined indicators of the other four sets of variables (i.e., extent of student interracial activity, teacher attitudes, principal and superintendent attitudes, and district and school desegregation-related activities).

The three steps described above provide analyses comparable to those reported for the Year One evaluation. A fourth step was added to the present series; this involved examining the relationships between the same set of school context measures used in the third step and an expanded set of student response variables that included the two School Climate Questionnaire scales.

(2) Results

Results of the analyses were disappointing, and failed to provide corroborative evidence for most of the relationships discovered in the Year One canonical correlation procedures. No clear or consistent chain of relationships was found among the various sets of variables being examined. Statistically significant canonical correlations were found in the analysis at all but one of the steps described above (see Appendix H, Tables H-25 to H-27 for canonical correlation values). However, the patterns of association among variables used in any given canonical correlation were internally inconsistent, frequently inconsistent with Year One results, and generally uninterpretable.

b. Analyses Relating Expenditures and Resource Allocations to Student Outcomes

Two sets of analyses were performed to determine possible relationships between program resources and student performance on standardized reading and math tests. In the first set of analyses describe below, the resource measures were actual dollar expenditures as determined from data provided by the district business managers. Resource measures used in the second group of analyses are also stated in terms of dollars; however, these dollar figures were derived from two other sets of data, one indicating the time allocations of certain school personnel and the other specifying the unit-time costs of those personnel.

(1) Relationships Between Expenditures and Achievement

Analyses were conducted to determine the relationships between certain expenditure variables and inter-school variations in achievement. One purpose of the analyses was to determine whether greater gains in reading and math test scores were made in schools with larger per-pupil expenditures. A second and closely related goal was to examine the functional relationships between expenditures and achievement gains, so as to identify "the minimum supplemental expenditures necessary to ensure some measure of program success." The assumption behind this second goal is that, at some critical level of added funding, a discontinuity occurs in the function or curve representing the relationship between expenditures and achievement gains, and the gains become more sharply evident. Such a funding level has been referred to as "critical mass." Evidence for the existence of critical mass in school finance has not been overwhelmingly clear, and one of the objectives of the present evaluation was to attempt to discover whether such discontinuities in relationships between funding and achievement gains could be found in the ESAA samples.

The following paragraphs describe the sources of data and the analytic methods used to examine relationships between expenditure data and achievement test scores. Following this, results are presented and implications of the findings are discussed.

(a) Methodology

Expenditure data for these analyses, computed in terms of standardized per-pupil expenditures, were derived from the School Business Manager (SBM) questionnaire. (Contents of the questionnaire and procedures for calculating the expenditure figures are described in Chapter V.) Differences between Year Two standard pretest and posttest scores were aggregated to the school level to provide measures of program effect in reading and mathematics.

Since funding levels (other than ESAA) were not established in schools by randomized assignment procedures, the analyses of relationships between funding and achievement were exploratory rather than confirmatory (experimental) in nature. A combination of quantitative and qualitative (visual inspection) procedures was used in an effort to discover possible discontinuities in those relationships that might indicate the presence of "critical mass" expenditure levels. The initial analysis technique was the generation of scatterplots of achievement gain by expenditure level. Different types of per-pupil expenditures examined included total, regular, total supplemental, ESAA supplemental, and non-ESAA supplemental expenditures. Scatterplots for the three evaluation samples (Basic Elementary, Basic Secondary, and Pilot Elementary) showed a tendency across samples for more highly-funded schools to have larger achievement gains; it was clear, however, that the relationships were non-linear.

These trends were generally substantiated by an exploratory discriminant analysis in which schools were arbitrarily divided into "high," "middle," and "low" reading achievement groups. The high group consisted of all schools having test score gains larger than 26 points, while the middle group had gains of 15 to 26 points and the low group's gains were below 15 points. These cutoff values created a middle group with twice as many schools as either the low or high group.

Results of the discriminant analysis, while not producing statistically significant results, did suggest a relationship between regular funding and achievement gains. The highest-achieving group had an average regular expenditure of slightly over $1,050 per pupil in the Pilot Elementary sample, and $1,150 in the Basic Elementary sample. The corresponding expenditure levels for the middle and low groups were $890 to $940 for the Pilot sample, and $1,040 and $950 for the Basic Elementary sample, respectively. Relationships of achievement gains to other expenditure categories (e.g., total, ESAA, and total supplemental) were much weaker. To investigate the relationships between expenditures and achievement further, three groups of schools were defined for each funding variable (i.e., for total, regular, and supplemental per-pupil expenditures) on the basis of differential levels of funding. Actual dollar ranges of the "high," "middle," and "low" expenditure groups for each funding category are specified in Section (b), below. For a given funding variable, the three expenditure groups were selected to maximize the relationship between achievement gain and expenditure level. The same classification levels were used with all three samples so as to determine the extent of generalizability of findings with respect to critical mass. Unfortunately, the dollar ranges defining the three expenditure groups were quite broad. A larger number of groups, each covering a small expenditure range, would have been helpful in pinpointing a more precise "critical mass," but the numbers of sample schools were too small to make such a procedure feasible.

The analytic technique used in reaching inferences concerning "critical mass" was a one-way analysis-of-variance model with contrasts. It was hypothesized that statistically significant overall variations in mean achievement gain would be found across the different expenditure groups in both reading and mathematics. It was further hypothesized (based on the scatterplots) that no statistically significant difference would be found between the performance of the low- and middle-expenditure group, while a significant difference would exist between the high-expenditure group and the pooled low and middle groups. If such results were evident, they might be interpreted as support for the concept of critical mass in school finance, though the large expenditure range covered by each of the three groups precluded the association of specific dollar values with those hypothesized critical masses. Separate analyses are reported below for regular, total supplemental, and total per-pupil expenditures.

(b) Results

Regular Expenditures. A "high-expenditure" group was defined to include all schools that had regular funds of at least $1,200 per pupil. The "middle" group had regular per-pupil expenditures between $900 and $1,200, and the "low" group had expenditures of $900 or less per pupil. Table X-1 contains data on achievement gains for the three expenditure groups formed within the different evaluation samples. Figures X-1 through X-4 show in graphic form the mean achievement gain of schools in each expenditure group for the Basic Elementary and Pilot Elementary samples.

TABLE X-1. ACHIEVEMENT GAINS FOR EXPENDITURE GROUPS BASED ON REGULAR PER-PUPIL EXPENDITURES

Funding Group	Regular District Expenditures			Reading Achievement Gain			Mathematics Achievement Gain		
	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N
	Pilot Elementary Sample								
Low* Expenditures	732.19	117.45	22	18.45	7.20	22	22.65	9.05	22
Middle** Expenditures	1046.13	92.60	11	18.00	5.28	11	18.82	7.97	11
High*** Expenditures	1506.20	237.28	8	27.18	4.87	8	32.59	7.35	8
	Basic Elementary Sample								
Low Expenditures	736.93	134.11	26	19.44	8.62	26	23.02	7.99	26
Middle Expenditures	1060.81	85.31	28	19.39	5.57	28	23.90	8.99	28
High Expenditures	1548.22	359.98	14	23.98	5.10	14	34.06	6.13	14
	Basic Secondary Sample								
Low Expenditures	697.93	214.25	14	0.39	3.59	14	9.95	15.07	14
Middle Expenditures	1068.49	72.94	20	1.78	4.75	20	10.58	17.39	20
High Expenditures	1347.14	81.72	10	1.52	3.11	10	18.35	10.92	10

* Schools with less than $900 per pupil

** Schools with $900.01 to $1,200 per pupil

*** Schools with more than $1,200 per pupil

Pilot Elementary Sample. For the Pilot Elementary sample, statistically significant variations were found in overall comparisons across the three groups (F-ratios significant $p < .01$) in both reading and mathematics. Further, the results of the contrasts were in the hypothesized direction; that is, there was no statistical difference in achievement gain between the low and middle groups, but there was such a difference ($p < .01$) between the high group and the pooled low and middle groups.

Figures X-1 and X-2 provide another perspective of the relationship between expenditures and achievement gains. In these figures, the X (abscissa) values of the three data points represent the mean expenditure values of the three expenditure groups, while the Y (ordinate) values correspond to the mean achievement gain. The graphs clearly show that the high-expenditure group made appreciably greater gains than the middle and low groups. The apparent drop in performance for the middle-expenditure group is puzzling, especially as it occurred in both reading and math. However, the difference between the low and middle group was not statistically significant, and the two groups were combined for comparison with the high-expenditure group.

Basic Elementary Sample. Results for the Basic Elementary sample provide important confirmation of the Pilot sample's findings, as the use of identically defined expenditure groups produced very similar relationships with achievement gains. Statistically significant ($p < .01$) variations among the three groups were found in mathematics gains. The difference in reading gain, while not statistically significant, was in the expected direction. Further, the inter-group contrasts were completely parallel to the results for the Pilot sample. There were no statistically significant differences between the low- and middle-expenditure groups, but significant differences ($p < .05$) in both reading and mathematics were found between the pooled lower groups and the high-expenditure group.

Figures X-3 and X-4 show again the similarity in expenditure-gain relationships for the Pilot Elementary and Basic Elementary samples. In the Basic Elementary sample, the reading and math gains of the high-expenditure group were clearly greater than those of the low and middle groups. Unlike the Pilot sample, however, there was no decrease in gains for the middle group relative to the low group; this suggests that the anomalous middle-group decrease in the Pilot sample was probably spurious.

Overall, the results for the Basic and Pilot Elementary samples suggest a fairly substantial change in the slope of the curve relating regular school expenditures to achievement gains. Furthermore, it appears that, for both samples, this change occurred somewhere between the midpoints of the dollar intervals for the middle- and high-expenditure groups (i.e., between about $1,050 and $1,500 per pupil). However, because of the large size of each interval, it is not possible to determine the specific point (if any) at which the curve makes a sharp increase in slope.

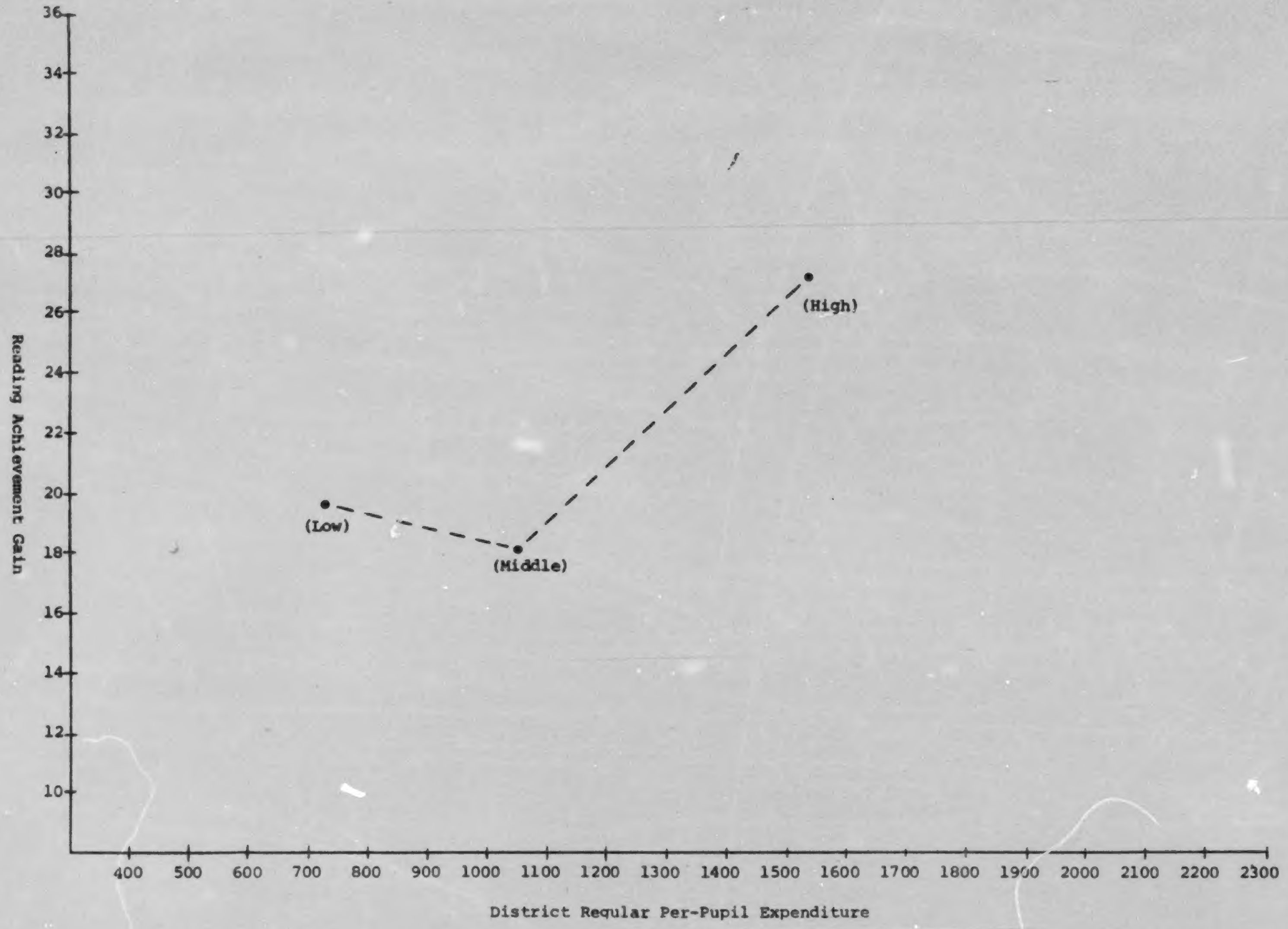

Figure X-1. Reading Achievement Gain vs. Regular District Expenditure: Pilot Elementary Sample

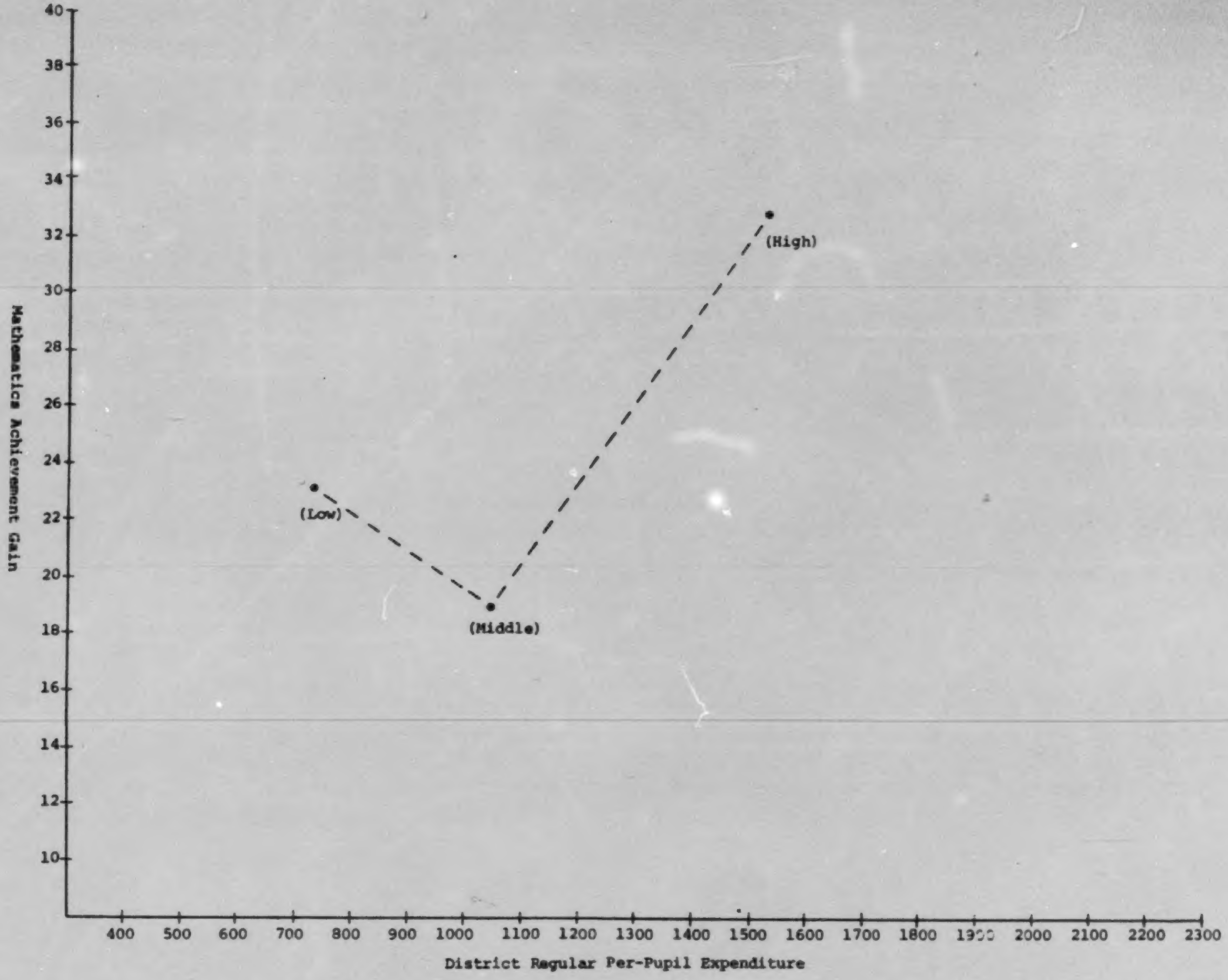

Figure X-2. Mathematics Achievement Gain vs. Regular District Expenditure: Pilot Elementary Sample

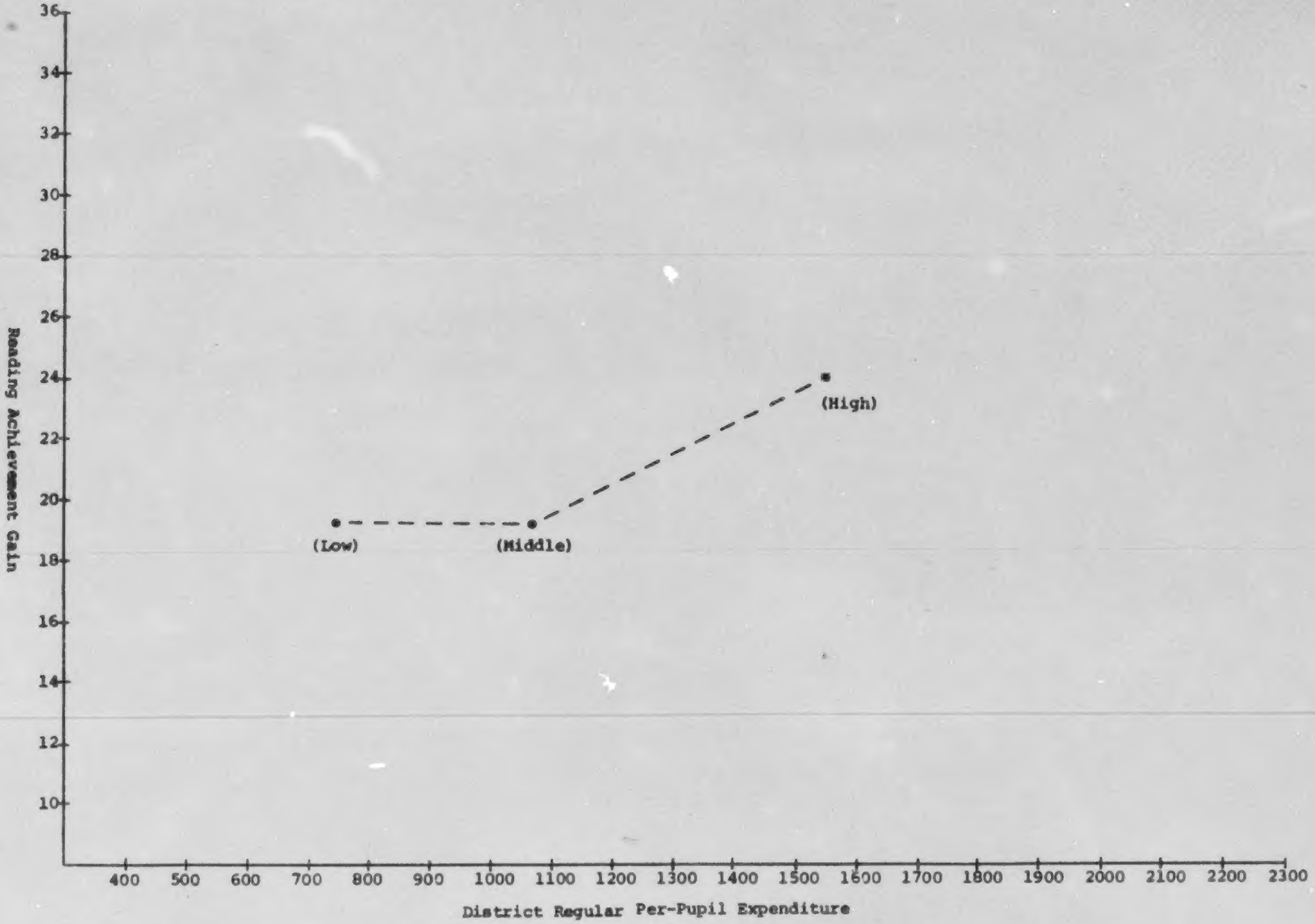

Figure X-3. Reading Achievement Gain vs. District Regular Expenditure: Basic Elementary Sample

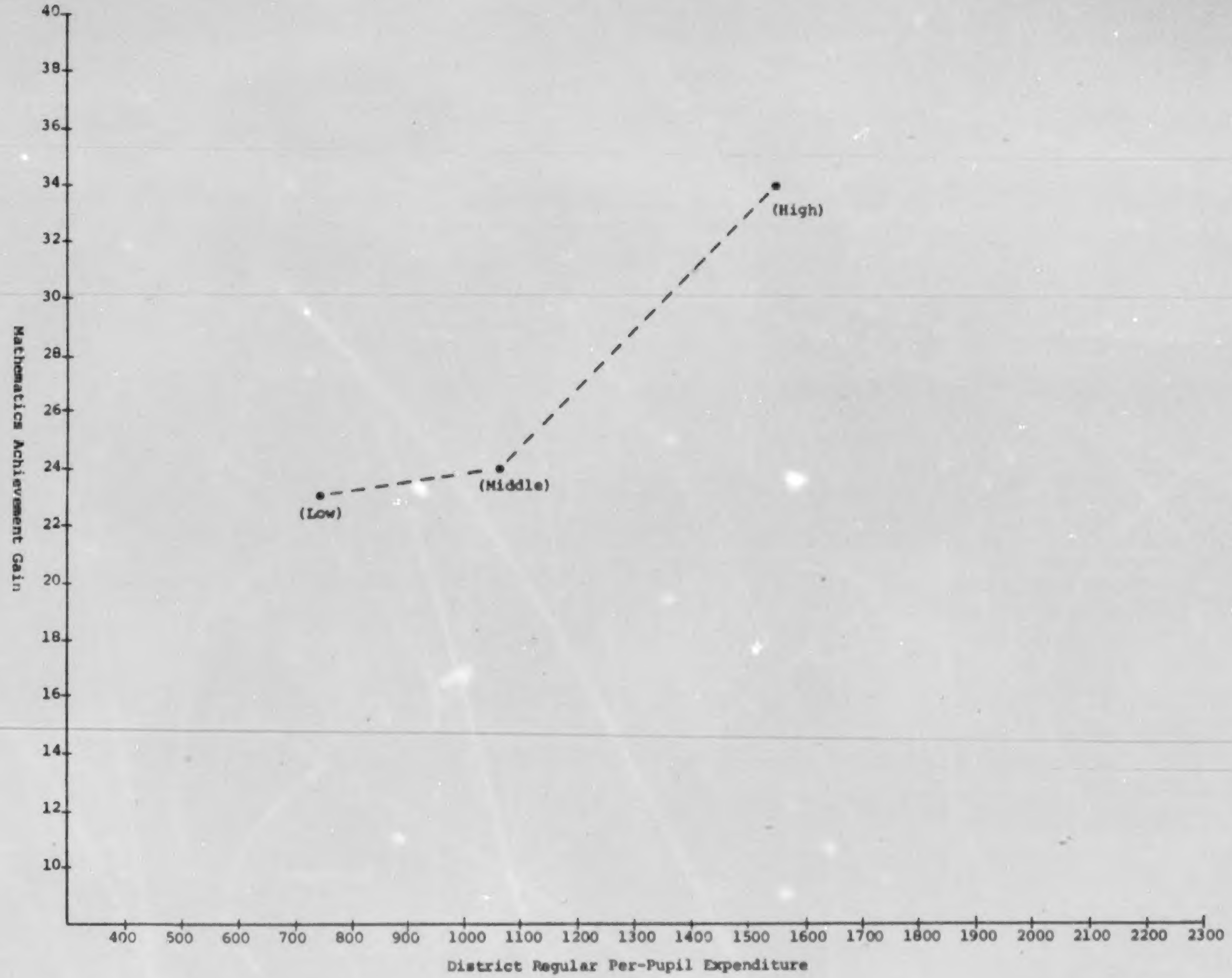

Figure X-4. Mathematics Achievement Gain vs. Regular District Expenditure: Basic Elementary Sample

Basic Secondary Sample. Results for the Basic Secondary sample did not fit the pattern described for the two elementary samples, as no clear trends were found in achievement gains for the three expenditure groups. There were probably two reasons for this. First, as seen in Table X-1, there was little variability in achievement gain for this sample, particularly in reading. Second, high schools tend to have different budgetary levels and patterns than elementary schools, so it is not entirely surprising that the same relationship between funding and achievement was not found at the secondary level. The Basic Secondary sample was deleted from subsequent analyses, and is not discussed in the remaining paragraphs of this section.

Total Supplemental Expenditures. Supplemental expenditures were of special interest in these analyses, since they can be more readily manipulated than regular district funds, through programs such as ESAA. The schools were categorized into the three funding groups based on the level of total supplemental per-pupil expenditures. Examination of the scattergrams indicated that the critical points should be $300 per pupil or greater for the high-expenditure group, between $150 and $300 for the middle group, and $150 per pupil or less for the low group. An analysis of variance was conducted, using three groups defined in this manner. Descriptive data for each group are presented in Table X-2.

As shown in Table X-2, there was little variation in average achievement gains among the three funding groups for either elementary sample. No statistically significant differences were found in reading and math gains. One conceivable explanation stems from the fact that supplemental funds tended to be targeted toward students with more severe learning problems, as defined by lower pretest scores (see discussion in Chapter V); possibly those students were relatively unresponsive to the effects of increased supplemental expenditure. Regular funds, on the other hand, can be considered a reflection of the community and its tax base, and an indication of wealth and a variety of other characteristics often associated with superior academic achievement. In any event, the present data suggest that supplemental dollars were spent differently and/or had different interactions with achievement than regular district dollars.

Total Per-Pupil Expenditures. Since total expenditures were, by definition, the sum of regular and supplemental expenditures, it might be expected that relationships between achievement and total per-pupil expenditures would be in the same direction as those found for regular expenditures, but somewhat weaker because of the lack of associations found for the supplemental funds. Such a result was, indeed, found.

In this set of analyses, schools with total funding of less than $1,000 per pupil constituted the low-expenditure group, while schools with between $1,100 and $1,400 were defined as the middle group, and those with expenditures totaling $1,400 or more per pupil constituted the high group. The analyses were conducted only for the two elementary samples, since the secondary sample had produced no evidence of a relationship. Descriptive data for these two samples are contained in Table X-3.

TABLE X-2. ACHIEVEMENT GAINS FOR EXPENDITURE GROUPS BASED ON TOTAL SUPPLEMENTAL EXPENDITURES

Funding Group	Regular District Expenditures			Reading Achievement Gain			Mathematics Achievement Gain		
	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N
	Pilot Elementary Sample								
Low* Expenditures	85.10	38.48	15	20.95	7.01	15	24.82	9.78	15
Middle** Expenditures	200.67	34.73	15	18.65	6.08	15	22.77	10.42	15
High*** Expenditures	597.54	314.74	11	20.65	8.90	11	22.91	8.70	11
	Basic Elementary Sample								
Low Expenditures	75.18	43.88	36	20.94	6.43	36	27.83	8.20	36
Middle Expenditures	203.26	38.24	22	19.89	8.63	22	22.61	10.35	22
High Expenditures	383.35	84.84	10	19.25	4.96	10	24.55	7.70	10

*Schools with less than $150 per pupil
**Schools with $150-$300 per pupil
***Schools with more than $300 per pupil

TABLE X-3. ACHIEVEMENT GAINS FOR EXPENDITURE GROUPS BASED ON TOTAL PER-PUPIL EXPENDITURES

Funding Group	Regular District Expenditures			Reading Achievement Gain			Mathematics Achievement Gain		
	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N
	Pilot Elementary Sample								
Low* Expenditures	892.28	107.70	20	19.15	7.09	20	23.14	9.63	20
Middle** Expenditures	1215.98	79.46	11	17.68	5.88	11	18.92	6.88	11
High*** Expenditures	1894.89	417.79	10	24.39	7.28	10	29.50	9.58	10
	Basic Elementary Sample								
Low Expenditures	888.67	141.63	30	20.07	8.09	30	24.57	8.56	30
Middle Expenditures	1258.74	77.73	24	19.02	5.59	24	23.44	8.37	24
High Expenditures	1762.85	329.22	14	23.22	6.12	14	31.80	9.21	14

*Schools with less than $1,100 per pupil
**Schools with $1,100-$1,400 per pupil
***Schools with more than $1,400 per pupil

Results for the two elementary samples were very similar. In both cases, there were no significant variations overall among the groups in reading achievement gain, although the high-expenditure group did have the highest mean achievement gain; furthermore, the contrast between the pooled lower groups and the high group reached significance only in the Pilot sample. Results with respect to mathematics scores were similar to those found for the regular district funds. That is, significant variations ($p < .05$) existed among the expenditure groups, and the contrast between the pooled low and middle groups and the high-expenditure group was statistically significant ($p < .01$). Thus it can be inferred that, in the relationship between total per-pupil expenditures and mathematics achievement, some type of discontinuity may have occurred indicating a "critical mass" in the general range between $1,215 and $1,900 for Pilot schools, and between $1,260 and $1,760 for Basic Elementary schools. However, since there is no clear evidence concerning the shape of the expenditure-achievement curve within those two broad ranges, no specific dollar values can be specified for the hypothesized "critical mass."

(2) Resource Cost Allocations

This section reports the results from analyses that utilized the per-pupil staff resource cost data (see Chapter VII of this report) and reading and math achievement gain scores to determine possible relationships between those two sets of variables.

(a) Methods

The statistical technique used in this analysis was stepwise multiple regression. For this analysis, the treatment and control schools within each sample were combined and the dependent variables, reading and math achievement gain scores, were aggregated across student and grade levels to derive an index of overall school growth. The independent variables used in each regression analysis included school-level per-pupil resource costs for classroom teachers, instructional aides, remedial specialists, resource teachers, media specialists, and school counselors. The procedures used in calculating these per-pupil resource costs are discussed in more detail in Chapter VII.

For each evaluation sample, six stepwise regressions were performed. Within reading, the per-pupil staff resource costs associated with regular reading were used in one regression equation, while the resource costs associated with remedial reading were used in a second equation. A third equation utilized the combined regular and remedial reading costs. The same analytic breakdowns were used for the math resource cost analyses.

(b) Results

In both the Pilot and Basic Elementary samples, none of the regressions of average school gain scores on resource cost allocations were statistically significant. In the scattered results that approached significance, the allocation of the regular classroom teachers was the most powerful predictor.

At the Basic Secondary level there were no significant results in predicting average math gains but there was significant prediction of reading gains from the allocation of regular reading resources. This result should probably be interpreted as spurious, given the number of regressions conducted, the lack of systematic patterns of results, and the extremely attenuated variability in the secondary reading gains.

C. LONGITUDINAL ANALYSES

An important design feature of the ESAA evaluation was the collection of data on a longitudinal sample of students who participated in the evaluation for more than one school year. While gains within a school year can be used to indicate the effects of short-term instruction, it was felt that the measurement of student growth over a longer period might provide more stable estimates of instructional outcomes, and might also yield insights into possible cumulative effects of the instruction. Analyses described in this section focus on the relationships of input, process, and outcome variables over the first two years of program implementation, for students in the longitudinal samples.

Students included in these analyses were elementary students for whom complete achievement data had been obtained over the two years. Data for secondary students were not included because of the small longitudinal sample size at that level, and because secondary students, for some as yet unknown reason, showed an overall achievement loss in the second year.

The required achievement data were available for a total of 5,578 elementary students, distributed across major sampling groups as follows:

Sample	Grade*	Total Number
Basic	3/4	2,101
Basic	4/5	2,193
Pilot	3/4	757
Pilot	4/5	527

*Indicates grade levels for first and second years, respectively.

It should be noted that there was a severe loss of Pilot sample students from the longitudinal sample, relative to the Year One cross-sectional sample. Some of this loss is due to the fact that only cases for which there were complete data on all variables could be used in the regression procedures. For the same reason, the number of cases in any one analysis may be smaller than the total number for whom achievement data were available.

1. DEFINITION OF VARIABLES

The independent variables used for the longitudinal regression analyses were largely derived from variables used in the cross-sectional regressions described above in Section B.1.b. Two sets of variables were defined for the longitudinal analyses. One set consisted of variables that were unlikely to have changed meaningfully over the two years of the study. This group included items characterizing the student's ethnicity, the SES proxy variables for the student's family, and relatively stable school variables such as enrollment and percentage of Title I students. The values obtained on these variables in the first-year data set formed the first segment of the longitudinal data.

The second set consisted of variables that might have changed from Year One to Year Two and that might have had an impact on student outcomes. This set included all of the variables describing the teachers and the reading and mathematics programs, as well as the supplemental reading and mathematics funding variables. For each variable in this set, a "change score" was derived (the Year Two value minus the Year One value). The Year One values and the change values for the variables formed the second segment of the longitudinal data.

The final set of variables included the Year Two pretest School Climate scores, several measures of the degree of desegregation within the classes, and some measures of staff attitudes related to desegregation. A complete list of this set of independent variables and their mnemonics is included in Appendix H, Table H-28, of this report.

The dependent variables used in the longitudinal regression analyses were residualized change scores. These were computed from linear regression analyses, with the Year Two total reading and total math posttest scores predicted from the Year One pretest scores. One reading residual score and one mathematics residual score was computed for each sample of students. These residual scores were calculated in the manner described for "total residuals" in Section B of this chapter.

Stepwise regression procedures were used in these analyses of the longitudinal data. As before, this technique was, in part, selected because of the direct interpretability of the results. Because the set of independent variables included both initial and change scores, slightly different regression programs were applied from those used in the cross-sectional analyses. The stepwise regression procedure used for the longitudinal analyses, in addition to adding a new variable at each step, also examined the existing equation at each step to see if a previously added variable should be deleted.

Again, care must be taken in any interpretation of results reported below. Values for the independent variables being examined were not randomly assigned to schools, classes, or students. The analyses can provide no evidence with respect to cause-and-effect relationships, and any inferences concerning causality are simply hypotheses.

2. RESULTS

The major emphasis in this section is on analytic results for the Basic grade 4/5 sample--that is, Basic sample students in the fourth grade in Year One and the fifth grade in Year Two. One reason for this selective emphasis is that the two-year achievement data for the grade 3/4 sample (students in grade 3 in Year One and grade 4 in Year Two) for both Basic and Pilot programs were strongly non-linear, probably due to the change in test level between the two grades (see Chapter IX for further evidence of this growth pattern). A second reason is that the small number of students in the grade 4/5 Pilot sample raised serious doubts concerning the stability of results obtained from that sample. Regression equations for all samples are given in Appendix H, Tables H-29 and H-30, but only the equations for the Basic 4/5 samples are discussed in this chapter.

a. Reading Achievement Scores

Table X-4 gives the overall regression statistics and the Beta coefficients for variables that entered the equation predicting the residual reading test scores. Of the 73 potential predictors used in the analysis, only 15 were included as significant ($p < .05$) in the final equation.

TABLE X-4. BASIC ELEMENTARY SAMPLE (GRADE 4/5):
SIGNIFICANT BETA COEFFICIENTS FOR RESIDUAL READING SCORES

Variable	Beta
Y1SREAD	-.074*
Y1SLR07	-.059
Y1GRAIDS	-.051
Y1TXPECT	.296*
Y1GRTEST	.056
Y2ESTWT	..070*
Y2ENROLL	.088*
Y2HHRESM	-.044
DSLR07	-.204*
D$READ	-.128*
DTXPECT	.109*
DBELNG	-.062*
DIELOC	.052
DSLR02	-.064*
DTMIXC	-.042
R = .384	
R_2 = .148	
N = 2,003	

*Statistically significant, $p < .01$; all others $p < .05$

The strongest relationship in these data was between the teacher's educational expectations for the student (Y1TXPECT) and the reading outcome. As in the cross-sectional analysis, the expectation variables had a high positive association with the reading achievement outcomes in both Basic and Pilot samples. Again, the most plausible explanation is probably that the teachers' stated expectations took into account their observations of actual student performance.

Surprisingly, several process and program characteristics thought to be beneficial to learning had negative coefficients; these included the magnitude of the supplemental reading funds (Y1$READ), the relative amount of time devoted to independent seat exercise (Y1SLR07), the use of teacher aides (Y1GRAIDS), and the extent of interracial mixing in the classroom (DTMIXC). Higher levels on all those variables were associated with lower reading gains. The only exception to the negative weightings for program and process variables was a positive coefficient for the relative emphasis on use of diagnostic testing in the instructional program (Y1GRTEST).

It is difficult to interpret the unexpected pattern of negative relationships, as some of the variables involved showed positive relationships in the cross-sectional samples. It is possible that there was insufficient stability in program approach over the two years, or perhaps sample attrition distorted the apparent relationships.

b. Mathematics Achievement Scores

Table X-5 shows the significant Beta coefficients resulting from the analysis of mathematics residuals for the Basic 4/5 sample. The 21 variables shown are those that had significant coefficients (p <.05) from a set of 74 potential predictors used in the analysis.

TABLE X-5. BASIC ELEMENTARY SAMPLE (GRADE 4/5): SIGNIFICANT BETA COEFFICIENTS FOR RESIDUAL MATHEMATICS SCORES

Variable	Beta
Y1SMATH	.065*
Y1GMBTXT	.080*
Y1GMAVIS	-.049
Y1GMATTN	.087*
Y1GMADDI	.073*
Y1AWARM	.065*
Y1AFLXBL	.068*
Y1ASPMAT	.067*
Y1LIKESC	.098*
Y1TXPECT	.227*
Y2$TOTAL	-.096*
Y2RTI05	.055
DTXPECT	.103*
DBELNG	-.042

*Statistically significant p <.01; all others p <.05

TABLE X-5. BASIC ELEMENTARY SAMPLE (GRADE 4/5): SIGNIFICANT BETA COEFFICIENTS FOR RESIDUAL MATHEMATICS SCORES (CONT.)

Variable	Beta
DIELOC	-.058*
DTMIXC	-.042
DLIKESC	.068
D2MBMCE	.082*
D2GMBSKE	-.009*
D2GMTERM	-.051
D2GMSTD	-.002*

R_2 = .349
R = .122
N = 2,010

*Statistically significant $p < .01$; all others $p < .05$

Two of the major predictors in this equation, as in the results for reading, were the Year One teacher's expectation of the student's educational attainment, and the change in this expectation by the teacher in the Year Two program (Y1TXPECT and DTXPECT). Another pattern in the findings appears to contrast sharply with those found for reading. All but one of the process and program type variables showed positive relationships with the mathematics residuals. For example, increased funds for math instruction, greater emphasis on the use of basic texts, and greater use of audiovisual materials were associated with higher residual scores on the mathematics tests.

D. SUMMARY

Several multivariate analysis procedures were used to explore relationships among student characteristics, staff and program characteristics, and outcomes (achievement test gains and improvement in school climate). None of these relational analyses was based on a true experimental design, as neither schools nor students were randomly assigned to the different treatment conditions being compared. Furthermore, although the focus of this chapter is on findings having some consistency, few relationships were found in all subsamples or for all outcome measures. For these reasons, results reported here should be interpreted with caution. Major findings of the relational analyses on the cross-sectional samples were as follows:

- In the Pilot Elementary cross-sectional sample, there was evidence of larger mathematics gains where supplemental math expenditures were higher, and where instructional emphasis was placed on drill and practice. In Basic Elementary schools, at the third grade, higher reading test gains were associated with students of teachers having more recent inservice training in reading instruction.

- At the secondary level, larger math gains were associated with (a) larger amounts of instructional time in mathematics, (b) mathematics teachers having more specialized training, and (c) smaller student-to-teacher ratios. Also of interest in the Basic Secondary sample was a positive relationship between gains in reading and district activities designed to facilitate and support school desegregation; a similar relationship was found in the Year One analyses, but at the elementary level.

- In the two elementary samples, desegregation-related school climate measures were higher (more favorable) where students (a) expressed a liking for school, and (b) perceived teachers as supportive. Pilot Elementary students who had greater exposure to cultural enrichment activities also felt they were treated better by the principals. In secondary sample schools, less feeling of alienation was reported by students whose teachers had expressed more positive attitudes toward integration and desegregation.

- No consistent or interpretable patterns of relationships were found in canonical correlations performed to explore chains of association connecting district and school desegregation-related activities, staff attitudes toward desegregation and compensatory education, and student attitudes and interracial activities.

- When schools were grouped according to their levels of regular district per-pupil expenditures, Pilot Elementary and Basic Elementary sample schools (but not Basic Secondary schools) showed significant variations in achievement gains across the three expenditure groups. Contrasts showed that the "high" expenditure group had significantly higher achievement gains in both reading and math than the combined "low" and "medium" groups. Although a discontinuity in the function relating expenditures to outcomes might be hypothesized between the "middle" and "high" expenditure ranges, those ranges were so broad that no specific "critical mass" could be identified.

Regression analyses were also performed to examine relationships among certain student variables, program variables, and outcome measures in the longitudinal samples, with focus on students who were at Grade Three in the first evaluation year and at Grade Four in the second year. Results are summarized below.

- Larger gains in mathematics were associated with higher funding for math instruction, greater emphasis on the use of basic texts, and greater use of audiovisual materials.

- By contrast, several program variables expected to aid instruction were associated with smaller reading gains; those included the magnitude of supplemental reading funds, the relative amount of time devoted to independent seat exercises, and the use of teacher aides. These surprising relationships may reflect instability of program approach over the two evaluation years, or perhaps sample attrition that might have biased the apparent associations.

CHAPTER XI

SUMMARY

An earlier report* described evaluation results for the first year of ESAA program implementation, based on a single type of outcome measure: performance on standardized achievement tests. The present Year Two Report includes two-year longitudinal data as well as one-year cross-sectional data on students' achievement gains. In addition, it contains impact data on students' perceptions of discrimination and other aspects of school climate. Because of unexpected changes in the sampling plan for the Office of Civil Rights' survey of districts in 1974-75, the OCR data tapes for that year did not contain minority-group isolation (MGI) data for a sufficiently large or diverse sample of districts to permit an evaluation of ESAA's overall impact on MGI; such an evaluation would have required a district-level comparison of MGI in ESAA-funded districts and in comparable but non-ESAA districts. However, MGI data for the ESAA evaluation sample are used in the Year Two Report for quasi-experimental analyses of relationships between certain program variables and reduction of MGI.

As in the Year One Report, the evaluation described in this report does not cover all types of subprograms funded under the Emergency School Aid Act, but is limited to the Basic and Pilot Grant programs; however, these two programs, collectively, account for approximately 79% of the total ESAA expenditures. Basic Grants are awarded to eligible school districts to help reduce minority-group isolation, to meet the special needs incident to the elimination of segregation and discrimination, and to assist elementary and secondary school children in overcoming the educational disadvantages associated with minority-group isolation. Pilot Project Grants are awarded to districts for unusually promising projects designed to overcome the adverse effects of minority-group isolation by improving the academic achievement of children in minority-isolated schools.

A major objective of the study, as initially defined by the U.S. Office of Education, has been to assess the overall impact of the Basic and Pilot programs on students' academic skills and on certain desegregation-related outcome measures. Accordingly, results of impact analyses are reported in this document. However, it has been apparent from the earliest stages of data collection that the results of any such overall impact study would almost certainly be equivocal and difficult to interpret because of the wide variations found among local ESAA projects with respect to specific project goals, approaches taken to reach these goals, and the magnitude and quality of project resources applied to the goals. There is a strong risk in any such evaluation that the outcome measures, particularly the achievement tests, will not be entirely applicable to all local projects. Furthermore, the deficiencies of some projects may obscure the successes of other projects. For these reasons, we consider the results of quasi-experimental analyses of outcome variations associated with local program differences to be fully as important as, and for many purposes more important than, results of the overall program impact analyses.

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*The First Year of Emergency School Aid Act (ESAA) Implementation. System Development Corporation, TM-5236/008/00, September 15, 1975.

The remainder of this chapter first summarizes some of the most relevant characteristics of the sample districts and schools, including the racial/ethnic composition of their staffs and student bodies, and the desegregation activities of districts having Basic programs. Descriptive data on the background and needs of sample students are then presented, followed by information on funding allocations and other program characteristics in the sample districts and schools. Finally, results of analyses of the sample students' gain in achievement test scores are summarized and interpreted.

A. CHARACTERISTICS OF SAMPLE SCHOOLS AND DISTRICTS

The Year Two cross-sectional samples (treatment plus control schools) included 44 Pilot Elementary schools, 70 Basic Elementary schools, and 38 Basic Secondary schools in 78 ESAA-funded school districts. Both pretest and posttest data were available for a total of 17,297 students in grades three through five and ten through twelve. The longitudinal samples (districts, schools, and students in the sample for both years) included 26 Pilot Elementary schools (treatment plus control), 70 Basic Elementary schools, and 22 Basic Secondary schools in 61 ESAA-funded districts (a total of 6,593 students). Much of the attrition resulted from the fact that students who were in grades five and twelve in Year One were dropped from the study in Year Two (while new grade 3 and grade 10 students were added); in addition, a number of the Year One sample districts and schools did not apply for or were not awarded ESAA funding in Year Two, and were thus deleted from the study.

Based on the sample selection procedures, it appears probable that both the Pilot Elementary and Basic Secondary cross-sectional samples for Year Two were representative of their respective Year Two evaluation universes--that is, of the districts, schools, and students meeting the conditions for selection into the evaluation samples. Since no new districts were drawn into the Basic Elementary sample, that group of districts was representative of the universe of districts meeting the Year One selection criteria and obtaining second-year funding.

With respect to the Year Two award universes--that is, the total universe of districts, schools, and students participating in ESAA Basic and Pilot programs--the cross-sectional sample districts were representative in all major aspects examined except total district enrollment, with medium-to-large districts being over-represented in the samples. The sample of students had larger minority-group percentages than did the districts from which those samples were drawn; however, this was probably a result of the ESAA resource allocation process itself, and there was no substantial evidence that the samples were non-representative of the universes of ESAA-participating students. Finally, it does not appear that sample bias was introduced by student attrition during the school year, at least with respect to the students' achievement pretest performance or their racial/ethnic composition.

Analyses were also performed to examine the representativeness of the longitudinal samples. There were no substantial differences in racial/ethnic composition between the Basic longitudinal sample districts and the Basic award universe. However, percentages of Black students were about nine percent higher overall in Pilot sample districts than in the Pilot award universe. As with the cross-sectional samples, both Pilot and Basic longitudinal sample districts typically had much larger enrollments than districts in the total award universe.

Over 50% of all Basic Elementary and Pilot Elementary sample districts were located in HEW Regions IV (Southeast) and VI (South Central). The Basic Secondary sample was even more heavily concentrated (70%) in these two areas. Comparison of the Year Two geographic distribution with the Year One distribution showed substantial changes for the Pilot Elementary and Basic Secondary samples. In the Pilot sample, Region VIII (Western Mountain) was newly represented in Year Two, while Region VI (South Central) showed a large decline in participation. Regions III (Mid-Atlantic), VIII (Western Mountain), and IX (Pacific Southwest) appeared in the Basic Secondary Year Two sample for the first time.

The racial/ethnic composition of the Basic Elementary and Secondary schools varied widely, but averaged over 50% White students. Pilot sample schools, by contrast, averaged around 80% minority students, of whom most were Black. In all samples, there was a higher percentage of Whites at the staff level than at the student level; this difference was especially pronounced in the Pilot sample.

Percentages of disadvantaged students in sample districts (as indicated by percentages reported eligible for ESEA Title I services) ranged from about 30% for the Basic Elementary and Secondary samples to around 40% for the Pilot sample. Overall, the highest percentages of such students were in Region IV (Southeast) and Region VI (South Central).

Based on Office of Civil Rights survey data for 1968, 1972, 1973, and 1974, it was determined that the Year Two Basic and Pilot award universe districts had increased their desegregation index (D.I.) values substantially between 1968 and 1974. Virtually all of this improvement had occurred by 1972, just prior to the start of ESAA. By that date, the districts subsequently given Pilot and Basic awards (i.e., the Year Two award universe districts) had lower levels of minority-group isolation than the total 1972 OCR survey universe; this suggests that ESAA grants went to districts that had already progressed further toward desegregation. Fourteen (2%) of the Year Two award districts further improved their desegregation status between fall 1973 and fall 1974. In general, desegregation status, as indicated by the government-accepted Desegregation Index (D.I.), tended to be better in districts with smaller numbers of schools.

Eleven (14%) of the Year Two sample districts reduced minority-group isolation between 1972 and 1974. Most of these districts (82%) were operating under court order plans, and nearly 60% had relatively poor desegregation status in 1972. Overall, in fact, the most consistent characteristic of districts showing reduction in minority-group isolation was that they had more room for improvement than other ESAA districts.

In comparison with Basic district superintendents, Pilot superintendents reported less favorable attitudes toward maintaining neighborhood schools "regardless of imbalance," and more favorable attitudes toward taking steps to provide better desegregation, such as establishing schools with limited grade spans, and pairing schools. Superintendents in both samples tended to ascribe more favorable attitudes toward desegregation to themselves than to other school and community groups.

Basic superintendents reported that transporting students from other areas, and drawing new boundaries, were the most common elements of their districts' desegregation plans. Pilot superintendents reported fairly common use of transporting students from other areas, establishing schools with limited grade spans, pairing schools, and drawing new school attendance boundaries. Treatment-control comparisons within the Pilot and Basic samples showed virtually no differences in any sociodeomographic dimension; this finding suggests that treatment and control school assignments were successfully randomized to meet the experimental condition of the sampling design.

B. STUDENT BACKGROUND AND NEEDS

There were slightly more females than males in all samples. Within the Pilot Elementary sample, approximately two-thirds of the students were categorized as Black by their teachers, 15% were Spanish-background, and 14% were White. In the Basic Elementary sample, slightly more than half the students were White, almost 40% were Black, and less than 2% were Spanish-background. The small percentage of Spanish-background students at the secondary level may, in part, reflect a higher dropout rate among that group in high school; in addition, the sample did not include any large districts in areas of the country with sizable proportions of Spanish-background students.

As in Year One, the academic needs of the sample students were acute, as indicated by their pretest performance on the achievement tests in reading and mathematics. Though performance varied across grade levels and across evaluation samples, all of the mean scores were well below the 50th percentile (i.e., the national median according to the test publishers' norms), with the bulk lying between the 15th and 35th percentiles. Pilot sample students tended to have lower scores than Basic students, and Black and Spanish-background students had somewhat lower pretest scores than Whites in all three samples. There was little evidence of interaction effects between socioeconomic level and race or between sex and race. Females, and students of higher socioeconomic level, tended to have higher pretest scores regardless of race. Overall, the posttest results appear to indicate that the ESAA grant award process led to the selection of needy districts and schools, and that the schools selected needy students to participate in the local ESAA programs. No evidence is available, however, as to whether the selected schools and students were the most needy in the participating districts.

According to the reports of the teachers, only about 40% of the parents of sample students had completed high school, and fewer than one-fifth of the fathers had completed college. Furthermore, the teachers reported that a large percentage of parents had unskilled jobs. Although the accuracy of the teachers' information is problematical, it appears reasonably certain that the sample students were economically as well as educationally disadvantaged. Lower socioeconomic status was reported for parents of Pilot sample students than for parents of Basic sample students.

Because random selection procedures were used to select students within grades, the samples of students can be assumed to be representative of ESAA-eligible students in the selected grade levels in sample schools. Treatment and control groups were effectively matched in both elementary samples, as evidenced by the absence of significant treatment-control differences on demographic variables, family variables, and pretest scores. In the Basic Secondary sample, control students had significantly higher initial reading achievement (grade ten) and higher mathematics achievement (grade twelve); these differences, though small in absolute magnitude, suggest that subsequent treatment-control comparisons of gains in test scores may tend to underestimate the relative achievement of the treatment group.

C. FUNDING PATTERNS

Particular emphasis was placed on funding allocations of the school programs, because of the importance of expenditure data in the design of the evaluation. In treatment schools, data were collected on ESAA expenditures. In treatment and control schools, data were collected on regular district expenditures and on non-ESAA supplemental expenditures, both to facilitate treatment-control comparisons and to provide a picture of the total budgetary context in the sample districts and schools. All school-level expenditures reported here are averages across all students in the sample schools (or, in the case of certain summaries of ESAA funds, averages across all ESAA participants in the schools). Although calculation in this manner facilitates the comparison of different expenditure categories across schools, the resulting figures must be interpreted as general approximations rather than as exact figures for the sample students.

The average total per-pupil expenditure was about $1,050 for Pilot and Basic Elementary schools, and about $1,050 for the Basic Secondary sample. Average total supplemental expenditures varied from $30 per pupil in the Basic Secondary sample to over $250 for the Pilot Elementary sample. The Basic Elementary average was about $100 less per pupil than that of the Pilot sample. Overall, the results show that by far the greatest proportion of the total school budget was from regular district sources.

Total per-pupil ESAA expenditures in treatment schools, calculated across the entire school enrollments, were $66 for Basic Elementary schools, $22 for Basic Secondary schools, and $124 for Pilot Elementary schools. When ESAA expenditures were calculated only for students designated as ESAA participants, the per-pupil figures were $191 in Basic Elementary schools, $140 in Basic Secondary schools, and $213 in the Pilot Elementary sample.

Strong relationships were found in the Basic Elementary sample, and similar though less consistent relationships in the Pilot sample, between school expenditures and academic needs of students in those schools. In general, schools having the greatest academic needs (i.e., the lowest reading and math pretest scores) had the lowest regular and total per-pupil expenditures, but also had the highest levels of supplemental expenditures. In the case of treatment schools, ESAA expenditures showed the same trend as other supplemental funds toward concentration in schools having the greatest academic need. Thus, although causality cannot be directly inferred from the analyses, it appears that supplemental funds, including ESAA money, were generally distributed in a fashion that helped to reduce the degree of financial disadvantagement in schools that were both economically and academically needy.

There were statistically significant treatment-control differences in total supplemental expenditures, favoring treatment schools, in all three evaluation samples. In almost every instance, however, these differences were small in relation to the schools' total (regular plus supplemental) expenditures. Furthermore, in the Basic Elementary and Pilot Elementary samples, there were no significant treatment-control differences in the allocations of supplemental funds for activities having apparent relevance to the outcome measures used in this study; specifically, no significant allocation differences were found for reading or math instruction, new curricula, guidance and counseling, intergroup and cultural enrichment, or community activities. While treatment schools in the Basic Secondary sample spent significantly more than control schools for reading and math, the absolute size of the differences was small.

All three Year Two evaluation samples allocated roughly 70% of their total supplemental expenditures for reading and math instruction, with the heavier emphasis in both elementary samples being in the reading area. Remaining funds were distributed over eight other allocation areas, with some focus in both Basic samples on new curriculum activities.

D. PROGRAM RESOURCES AND SERVICES

Participation in ESAA-funded compensatory reading programs averaged around 24% of all students in the Basic Elementary sample schools, 17% of students in the Basic Secondary sample schools, and 44% in the Pilot schools. In mathematics, participation averaged 29% of all students in the Basic Elementary sample schools, 16% in the Basic Secondary sample, and 53% in the Pilot sample. About one-fourth of the Basic treatment schools reported having an ESAA-funded guidance/counseling program, while one-third of the Basic Elementary and two-fifths of the Basic Secondary treatment schools had ESAA-funded intergroup relations or cultural enrichment programs. Two-fifths of the Basic Elementary and one-fourth of the Basic Secondary treatment schools had ESAA-funded staff development programs.

Total hours per week spent by students in reading activities averaged almost eleven hours for the Basic Elementary and Pilot Elementary samples, and eight hours for the Basic Secondary sample. Hours per week in mathematics instruction averaged around seven hours for the two elementary samples and five hours for the Basic Secondary sample. In both elementary samples, students' exposure to non-academic (intergroup) programs was greatest in cultural enrichment and field trips, while at the secondary level, major emphasis was on field trips, interracial programs, and individual counseling and guidance.

There was a general, but not pronounced, tendency for students with greater academic needs in a particular content area (i.e., reading or math) to receive greater exposure to instruction in that area. Furthermore, there was a strong relationship between students' socioeconomic status (as defined by two categories of possessions in the home) and amount of exposure to cultural enrichment, indicating that students with lower socioeconomic status were receiving greater exposure to such programs. These findings appear to provide further tentative evidence that program services, including ESAA activities, were applied in accordance with student needs.

Student-to-teacher ratios in regular reading instruction averaged 22 for the Basic Elementary and 24 for the Basic Secondary and Pilot Elementary samples; the ratios in regular math instruction were 25 for the Basic Elementary and Secondary samples and 26 for the Pilot Elementary sample. In remedial reading, the ratios were 12, 19, and 18, respectively, for the Basic Elementary, Basic Secondary, and Pilot Elementary samples, while the corresponding ratios for remedial math were 12, 20, and 16. Considerable emphasis was reportedly placed, especially in the elementary samples, on the use of learning objectives, on diagnostic testing, and on individualized or small-group instruction.

In reading, the predominant approach of the teachers was linguistic-phonetic, with emphasis also being placed on the language experience approach and the sight method; elementary-level teachers apparently used a wider variety of instructional approaches in a given classroom than secondary-level teachers. In math, the major approach was on the basic texts, with programmed texts and the laboratory approach also being used frequently, especially in remedial programs. There was a general tendency for Pilot school teachers to make greater use than Basic teachers of somewhat innovative, less traditional teaching approaches, such as the use of programmed materials and modified alphabets.

Of the many program characteristics examined, statistically significant treatment-control differences were found in only a few scattered cases--essentially at the chance level of occurrence. One possibly meaningful difference was in teachers' use of special personnel in their teaching efforts, with treatment teachers generally using such personnel more frequently. Overall, results of the comparisons, particularly in the areas of reading and math instruction, failed to support the study's original assumption that treatment and control schools would differ substantially in important program dimensions having direct relevance to the study's outcome measures.

In an effort to provide more direct comparisons of actual resources applied in the sample classrooms to different instructional objectives, data on staff time allocations were converted into dollar equivalents. This was done by combining the time allocation data (as reported by the schools) with data on the unit-time costs associated with different categories of school personnel (e.g., teachers, paid aides, counselors, etc.). Results of these analyses indicated that considerably greater resource allocations were made for reading instruction than for math instruction in all three samples of schools. Schools in both elementary samples tended to devote more resources to reading and math instruction than did the secondary sample schools. Resource allocations for regular reading and regular math did not differ appreciably between the two elementary samples, but Basic Elementary schools devoted greater staff resources than Pilot schools to remedial reading. In the Basic Elementary and Secondary samples there were no significant treatment-control differences in the total per-pupil resource costs (as calculated from staff allocations and staff unit-time cost estimates) for either reading or math instruction. Only the Pilot Elementary sample showed differences favoring treatment schools.

E. GAINS IN ACHIEVEMENT AND IN SCHOOL CLIMATE

Overall, the Year Two impact analyses showed no consistent evidence of statistically significant treatment effects favoring ESAA-funded schools over control schools, in either the cross-sectional sample or the two-year longitudinal sample. During the second year of ESAA implementation, neither the achievement test gains nor changes in the school climate indices were consistently greater for the treatment (ESAA-funded) schools than for the paired-within-district control schools. Graphs of treatment and control groups' test performance over the two-year period suggest a slight differential gain in the Basic Elementary sample favoring treatment schools, but analyses of three-year data will be necessary to confirm a consistent pattern.

As in Year One, the apparent lack of overall program impact seems to reflect a corresponding lack of clear-cut treatment-control differences in program resources and services. Although treatment schools showed larger expenditure levels in certain broad funding categories (e.g., total supplemental expenditures), there were no significant treatment-control differences for either elementary sample in the allocations of supplemental funds directed specifically toward such crucial activities as reading or math instruction, new curricula, or intergroup and cultural enrichment activities. Even more important, perhaps, there was little evidence of any substantial differences in actual services offered by the treatment and control schools. Given these constraints, any evidence of generalized ESAA program impact should probably not be expected. While it appears that some local ESAA projects enjoyed appreciable success, those instances were largely offset by other local sites where control school gains were equal to or greater than the treatment school gains. An In-Depth Study has been conducted in a subset of ESAA sample sites to examine cases of local program success and to identify specific program features contributing to that success; results of that study are presented in a separate report.

As in Year One, the achievement test scores of the total evaluation samples (combined treatment and control schools) were examined to determine whether the overall pretest-posttest gains were greater than might have been predicted on the basis of prior normative data. For the Year Two Report, a single criterion of "predicted" gain was defined; this was the gain required for an initially low-achieving school to maintain its same percentile rank at posttest, relative to the national norms. Two different time intervals were used to establish specific gain criterion values. One interval was from the Year Two pretest to the Year Two posttest; criterion (predicted) gains for this interval represented interpolations of somewhat uncertain validity, since the publishers' normative tables are empirically anchored at only one calendar point per school year. The second criterion interval was from the Year One posttest to the Year Two posttest; predicted gains for this interval were more securely founded, since the two terminal points correspond essentially to the points at which the normative data are empirically anchored. Bayesian analytic techniques were used in comparisons of predicted (criterion) values and observed achievement test gains. These techniques permit comparisons of local program achievement against criteria, and take statistical account of the fact that multiple comparisons are being performed.

Examining first the gains within the second school year, results for the Pilot and Basic Elementary cross-sectional samples closely paralleled those for Year One, with between one-fourth and three-fourths of the schools (depending on subtest and grade level) exhibiting average gains that would maintain or improve their relative positions in the national distributions. Overall, gains for both elementary samples were slightly above what one might expect for severely disadvantaged students, particularly in mathematics. At the secondary level, by contrast, relatively few schools met the growth criterion.

Results for the full calendar year (Year One posttest to Year Two posttest) were somewhat less encouraging. Though roughly half the elementary and secondary schools met their growth criteria in mathematics, only one-third to one-half of the Pilot Elementary schools and one-tenth to one-third of the Basic Elementary and Secondary schools met the growth criteria in reading. Differences in results for the two time intervals (school year and calendar year) may reflect differences in the samples themselves, since the full-year analyses were based on only the longitudinal sample students. Alternatively, the different results may reflect the use of different reference points in the publishers' normative tables.

Overall, results of the Bayesian analyses were inconclusive, but tended to suggest better-than-expected achievement, particularly in mathematics, for the sample schools. These findings could simply reflect sampling or measurement errors. However, another possible inference is that the ESAA funds, added to the general pool of dollars available to the sample district, allowed the districts to increase the total supplemental budgets of control schools as well as treatment schools (e.g., by giving more of their Title I funds to the control schools), and thereby helped to enhance achievement in both treatment and control schools. Some clarification of this issue may come from the Year Three data, since more detailed breakdowns of program allocations from specific funding sources are currently being collected.

F. RELATIONSHIPS AMONG ACHIEVEMENT SCORES, STUDENT VARIABLES, AND PROGRAM VARIABLES

Linear regression analyses were performed to explore relationships among student characteristics and achievement test scores in the Year Two cross-sectional samples. These analyses used the individual student as the unit of analysis. Before summarizing the more interesting results of these analyses, it is important to stress certain limitations in the analytic design that affect the interpretation of the findings. First, the regression analyses were not based on a true experimental design. Neither schools nor students were randomly assigned to the different treatment conditions being compared. As a consequence, it is quite possible that observed relationships may be artifacts of the samples involved in these analyses. The second constraint is that nothing in these analyses can be interpreted as evidence of causal relationships between program variables and achievement test measures. The analyses yield estimates of the degree of association among variables, but they do not provide any information about whether changes in one set of variables (e.g., instructional procedures) cause changes in another set (achievement test scores).

Finally, in no case was a relationship found statistically significant at all grade levels and for all test measures; however, the results summarized below involve relationships that were found across enough different grade levels and test criterion measures to be interpretable as showing some moderately consistent trend. For summary purposes the general trends are described below, but readers must refer to the more detailed discussions in the earlier chapters to ascertain the breadth and consistency of those trends.

In the Pilot Elementary sample, there was some evidence of larger mathematics gains where supplemental math expenditures were higher, and where instructional emphasis was placed on drill and practice. In Basic Elementary schools, at the third-grade level, higher reading test gains were associated with students of teachers having more recent inservice training in reading instruction. Several relationships were found in the Basic Secondary sample, with respect to math achievement gains. Larger math gains in secondary schools were associated with (a) larger amounts of instructional time in mathematics, (b) mathematics teachers having more specialized training, and (c) smaller student-to-teacher ratios. Of additional interest in the secondary sample was a positive relationship between gains in reading and district activities designed to facilitate and support school desegregation. This last finding is particularly important, both because of its clear policy relevance to ESAA-eligible districts and schools, and because it shows consistency with one of the key findings of the Year One analysis; based on results over the two years, it seems reasonable to speculate that desegregation-supporting activities may have helped to provide an environment that supported positive student attitudes and, consequently, facilitated learning.

The most consistent finding in all three samples was that students for whom teachers had higher educational expectations tended to make larger reading and math gains. However, since the questionnaire asking about expectations was administered fairly late in the school year, it is probable that those expectations simply reflected the teachers' observations of the students' actual performance.

Regression analyses were also performed to investigate interactions of student and program variables with gains on scales derived from responses to a School Climate Questionnaire (SCQ) dealing with students' perceptions of discrimination. Again, the individual student was the unit of analysis. In both the Pilot and Basic Elementary samples, gains on one or more SCQ scales were greater where students (a) expressed a liking for school, and (b) perceived teachers as supportive. Pilot Elementary students who had greater exposure to cultural enrichment activities also felt that they were treated better by the principals. In the Basic Elementary sample, surprisingly, a negative relationship was found between the students' socioeconomic level (as indicated by possessions in the home) and gains in school climate. That is, students of relatively higher socioeconomic levels tended to report less favorable opinions of their schools' climate. A possible interpretation is that the less-advantaged students had lower expectations for, and therefore greater tolerance of, conditions in their schools. Additional relationships were found in the Basic Secondary sample, where students reporting less feeling of alienation also expressed more liking for their teachers. Also at the secondary level, less feeling of alienation was reported by students whose teachers had expressed more positive attitudes toward integration and desegregation.

Year One analyses had shown a number of fairly consistent relationships between achievement gains and certain desegregation-related attitudes and activities at the district, school, and classroom levels. In Year Two, also, there was evidence in the regression analyses for certain subsamples indicating better achievement gains where districts undertook more activities designed to support and facilitate desegregation in the schools. In an attempt to explore these types of interactions more intensively, canonical correlations were performed using schools as the unit of analysis. It was expected that a chain of relationships might be found connecting district and school desegregation-related activities, staff attitudes, and interracial activities. However, no clear or consistent relational chain was evident in the Year Two data. Moderately large canonical correlations were found at most steps, but the patterns of relationships among variables used in a given canonical correlation were erratic and uninterpretable.

Another set of school-level analyses used discriminant analysis techniques, analyses of variance, and visual inspection of scatterplots of study relationships between school funding variables and gains in reading and mathematics. The strongest set of associations was between regular district per-pupil funds and achievement. Sample schools were sorted into three groups according to their regular expenditure levels. For both Pilot Elementary and Basic Elementary samples, but not for secondary schools, significant variations in achievement gains were found in overall comparisons across the three groups. Contrasts among the groups showed that the "high" expenditure group (defined as $1200 or more per student in regular district expenditures) had significantly higher achievement gains in both reading and math than the combined "low" and "medium" groups (less than $1200 per student). Although a discontinuity in the function relating expenditures and achievement might be hypothesized between the "middle" and "high" expenditure ranges, those ranges were so broad that no specific "critical mass" could be identified. Furthermore, it is possible that, in the apparent association between funding and achievement, the regular district funding level was simply serving as a proxy for general socioeconomic status in the community and school.

Essentially the same relationships described above were found between total per-pupil expenditures and achievement, though at a weaker level. Supplemental expenditures showed no significant relationships with achievement, suggesting that supplemental funds were applied differently than regular funds. Such an explanation seems reasonable, in view of the evidence that supplemental funds tend to be targeted toward students with more severe learning problems, whereas regular funds tend to reflect community wealth and other characteristics often associated with superior academic achievement.

Finally, regression analyses were performed to examine relationships among certain student variables, program variables, and outcome measures in the longitudinal samples, i.e., schools and students in the sample for both evaluation years. Interest in these analyses was focused on students who were at grade three in the first year and grade four in the second year. The strongest relationships, as in the cross-sectional sample analyses, was a positive association between the teachers' educational expectations of the students, and achievement (both reading and math). Several process and program variables showed positive relationships with math achievement. Larger gains in math were associated with higher funding for math instruction, greater emphasis on the use of basic texts, and greater use of audiovisual materials. By contrast, several program variables expected to aid instruction were associated with smaller reading gains; these included the magnitude of supplemental reading funds, the relative amount of time devoted to independent seat exercises, and the use of teacher aides. It is difficult to interpret these negative relationships, especially as some of the same variables showed positive relationships in the cross-sectional samples. Possibly there was insufficient stability in program approach over the two years, or perhaps sample attrition distorted the apparent relationships.

APPENDIX A

STATES IN EACH HEW REGION

HEW Region	States
I	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
II	New Jersey, New York, Puerto Rico, Virgin Islands
III	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia, Alabama, Florida, Georgia, Kentucky
IV	Mississippi, North Carolina, South Carolina, Tennessee
V	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin
VI	Arkansas, Louisiana, New Mexico, Oklahoma, Texas
VII	Iowa, Kansas, Missouri, Nebraska
VIII	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming
IX	Arizona, California, Guam, Hawaii, Nevada
X	Alaska, Idaho, Oregon, Washington

APPENDIX B

STATE DISTRIBUTION OF SAMPLE DISTRICTS*

State Name	Pilot Elementary			Basic Elementary			Basic Secondary		
	Cross-Sectional	Longitudinal	Year One Distribution	Cross-Sectional	Longitudinal	Year One Distribution	Cross-Sectional	Longitudinal	Year One Distribution
Alabama	2(9.5)	1(7.7)	3(9.6)	4(11.4)	4(11.4)	4(10.0)	2(10.5)	1(9.1)	1(5.9)
Arizona	2(9.5)	2(15.4)	2(6.5)	-	-	-	-	-	-
Arkansas	-	-	2(6.5)	2(6.5)	2(5.7)	2(5.7)	-	-	-
California	2(9.5)	0(0.0)	-	1(2.9)	1(2.9)	2(5.0)	1(5.3)	0(0.0)	-
Colorado	1(4.8)	0(0.0)	-	-	-	-	1(5.3)	0(0.0)	-
Florida	1(4.8)	1(7.7)	1(3.2)	1(2.9)	1(2.9)	1(2.5)	2(10.5)	2(18.2	2(11.8)
Georgia	3(14.3)	2(15.4)	2(6.5)	1(2.9)	1(2.9)	1(2.5)	2(10.5)	1(9.1)	1(5.9)
Illinois	-	-	-	2(5.7)	2(5.7)	2(5.0)	-	-	-
Indiana	-	-	-	-	-	-	1(5.3)	1(9.1)	1(5.9)
Kansas	-	-	-	1(2.9)	1(2.9)	1(2.5)	-	-	-
Louisiana	-	-	2(6.5)	2(5.7)	2(5.7)	2(5.0)	1(5.3)	1(9.1)	3(17.6)
Michigan	-	-	-	-	-	-	1(5.3)	0(0.0)	1(5.9)
Mississippi	-	-	-	1(2.9)	1(2.9)	1(2.5)	1(5.3)	1(9.1)	1(5.9)
Missouri	-	-	-	1(2.9)	1(2.9)	1(2.5)	-	-	-
New Jersey	2(9.5)	1(7.7)	3(9.6)	1(2.9)	1(2.9)	-	-	-	-
New Mexico	1(4.8)	1(7.7)	2(6.5)	2(5.7)	2(5.7)	2(5.0)	-	-	-
New York	1(4.8)	0(0.0)	1(3.2)	2(5.7)	2(5.7)	1(3.2)	-	-	1(5.9)
North Carolina	-	-	-	1(2.9)	1(2.9)	3(7.5)	1(5.3)	0(0.0)	-
Ohio	1(4.8)	1(7.7)	2(6.5)	1(2.9)	1(2.9)	1(2.5)	-	-	-
Pennsylvania	1(4.8)	1(7.7)	1(3.2)	-	-	1(2.5)	-	-	-
South Carolina	-	-	2(6.5)	1(2.9)	1(2.9)	2(6.5)	1(5.3)	1(9.1)	1(5.9)
Tennessee	-	-	-	2(5.7)	2(5.7)	3(7.5)	-	-	2(11.8)
Texas	1(4.8)	0(0.0)	3(9.6)	3(8.6)	4(11.4)	4(10.0)	3(15.8)	3(27.3)	3(17.4)
Virginia	3(14.3)	3(23.1)	5(16.1)	-	2(5.7)	2(5.0)	-	-	-
Washington	-	-	-	-	3(8.6)	2(5.0)	-	-	-
W. Virginia	-	-	-	-	-	2(5.0)	1(5.3)	0(0.0)	-
Wisconsin	-	-	-	-	-	-	-	-	-
TOTAL	21	13		35	35		19	11	

*Table entries represent the numbers of sample districts and the coresponding percentages (in parentheses) of total districts.

APPENDIX C

INTERCORRELATIONS OF SCHOOL DEMOGRAPHIC VARIABLES

A. Basic Elementary

	School Enrollment 1*	Percentage Minority Student 2	Percentage Minority Teachers 3	Percentage Minority Adminis-tration 4	Percentage Minority Clerical 5	Percentage School Community Type 6	Percentage Disadvantaged 7
1	-	-.03	.08	-.11	.09	-.22	-.19
2		-	.66**	.58**	.68**	.08	.80**
3			-	.62**	.58**	.03	.50**
4				-	.60**	.19	.54**
5					-	-.02	.57**
6						-	.19
7							-

B. Basic Secondary

1	-	.04	-.02	-.07	.10	-.44**	-.33**
2		-	.66**	.78**	.89**	-.40**	.61**
3			-	.65**	.60**	-.40**	.32**
4				-	.80**	-.48**	.36**
5					-	-.47**	.29
6						-	-.08
7							-

C. Pilot Elementary

1	-	.31	-.22	.34	-.15	.22	.09
2		-	.43	-.34	.17	.04	-.06
3			-	-.10	.60**	-.05	-.21
4				-	.29	-.10	-.05
5					-	-.26	-.19
6						-	-.26
7							-

*Number 1 in the column heading corresponds with number 1 in the row heading.

**Statistically significant $p < .05$.

APPENDIX D

MEAN ACHIEVEMENT PERFORMANCE BY RACIAL/ETHNIC GROUP AND SOCIOECONOMIC LEVEL IN BASIC ELEMENTARY SAMPLE

A. Cross-Sectional

	Reading Total						Math Total					
	Grade 3		Grade 4		Grade 5		Grade 3		Grade 4		Grade 5	
	Low SES	High SES	Low SES	High SES	Low SES	High SES	Low SES	High SES	Low SES	High SES	Low SES	High SES
Black (N)	39.8 (517)	44.2 (453)	20.9 (503)	24.0 (576)	27.3 (498)	29.8 (611)	46.6 (517)	50.7 (453)	21.5 (503)	23.4 (576)	29.9 (498)	31.7 (611)
Spanish (N)	46.5 (157)	47.9 (85)	25.4 (141)	26.2 (100)	28.8 (162)	31.1 (121)	61.0 (157)	60.5 (85)	27.1 (141)	27.1 (100)	32.5 (162)	35.1 (121)
White (N)	52.2 (323)	60.0 (838)	30.7 (262)	36.6 (986)	38.2 (238)	45.1 (993)	59.5 (323)	64.7 (838)	27.7 (262)	32.4 (986)	36.2 (238)	40.6 (993)
Other (N)	50.6 (27)	58.1 (36)	32.6 (19)	34.7 (52)	39.6 (16)	49.7 (64)	59.8 (27)	68.3 (36)	33.3 (19)	33.9 (52)	36.4 (16)	47.8 (64)

B. Longitudinal

Black (N)	N.A.*	N.A.	21.1 (415)	24.1 (472)	27.6 (429)	30.4 (501)	N.A.	N.A.	21.8 (415)	23.5 (472)	30.4 (429)	32.3 (501)
Spanish (N)	N.A.	N.A.	25.4 (90)	27.6 (71)	28.1 (119)	30.3 (95)	N.A.	N.A.	27.9 (90)	28.2 (71)	32.0 (119)	34.8 (95)
White (N)	N.A.	N.A.	31.4 (182)	37.5 (687)	37.6 (182)	45.7 (756)	N.A.	N.A.	27.9 (182)	33.2 (687)	35.4 (182)	41.0 (756)
Other (N)	N.A.	N.A.	31.6 (14)	34.6 (40)	42.3 (11)	50.4 (55)	N.A.	N.A.	31.9 (14)	34.0 (40)	35.0 (11)	48.5 (55)

*N.A. = Nonapplicable.

APPENDIX D

MEAN ACHIEVEMENT PERFORMANCE BY RACIAL/ETHNIC GROUP AND SOCIOECONOMIC LEVEL IN BASIC SECONDARY SAMPLE

A. Cross-Sectional

	Reading Total						Math Total					
	Grade 10		Grade 11		Grade 12		Grade 10		Grade 11		Grade 12	
	Low SES	High SES	Low SES	High SES	Low SES	High SES	Low SES	High SES	Low SES	High SES	Low SES	High SES
Black (N)	114.8 (437)	121.0 (185)	119.4 (387)	124.9 (131)	125.6 (341)	129.7 (111)	31.5 (437)	34.6 (185)	33.1 (387)	40.3 (131)	36.5 (341)	38.0 (111)
Spanish (N)	133.6 (14)	120.2 (11)	133.0 (14)	130.0 (10)	155.0 (5)	135.6 (8)	44.8 (14)	40.6 (11)	44.0 (14)	40.4 (10)	41.2 (5)	54.6 (8)
White (N)	137.4 (235)	146.4 (657)	148.5 (217)	158.4 (611)	157.8 (175)	165.6 (474)	46.5 (235)	53.6 (657)	53.5 (217)	60.1 (611)	53.5 (175)	61.8 (474)
Other (N)	120.0 (4)	119.1 (11)	122.4 (10)	138.0 (5)	142.0 (4)	144.0 (3)	35.5 (4)	41.8 (11)	36.0 (10)	46.2 (5)	27.8 (4)	50.7 (3)

B. Longitudinal

Black (N)	N.A.*	N.A.	120.5 (191)	119.0 (70)	125.1 (184)	130.3 (64)	N.A.	N.A.	33.8 (191)	38.2 (70)	37.7 (184)	40.4 (64)
Spanish (N)	N.A.	N.A.	136.0 (3)	158.5 (2)	159.0 (4)	155.0 (2)	N.A.	N.A.	32.3 (3)	45.0 (2)	48.8 (4)	57.5 (2)
White (N)	N.A.	N.A.	151.9 (76)	163.3 (201)	158.6 (52)	167.5 (154)	N.A.	N.A.	56.3 (76)	64.2 (201)	51.2 (52)	63.2 (154)
Other (N)	N.A.	N.A.	103.7 (3)	135.0 (1)	162.0 (1)	- (0)	N.A.	N.A.	21.3 (3)	69.0 (1)	30.0 (1)	- (0)

*N.A. = Nonapplicable.

APPENDIX D

MEAN ACHIEVEMENT PERFORMANCE BY RACIAL/ETHNIC GROUP AND SOCIOECONOMIC LEVEL IN PILOT ELEMENTARY SAMPLE

A. Cross-Sectional

	Reading Total						Math Total					
	Grade 3		Grade 4		Grade 5		Grade 3		Grade 4		Grade 5	
	Low SES	High SES	Low SES	High SES	Low SES	High SES	Low SES	High SES	Low SES	High SES	Low SES	High SES
Black (N)	40.0 (435)	41.5 (384)	21.3 (541)	23.6 (514)	25.7 (589)	28.6 (545)	51.4 (435)	51.5 (384)	21.8 (541)	24.3 (514)	29.0 (589)	30.7 (545)
Spanish (N)	40.2 (147)	38.8 (101)	23.2 (151)	22.8 (95)	26.6 (159)	30.5 (117)	51.3 (147)	49.7 (101)	23.4 (151)	24.3 (95)	30.7 (159)	32.8 (117)
White (N)	46.1 (104)	48.4 (103)	27.6 (85)	30.3 (128)	35.7 (72)	35.4 (156)	53.2 (104)	53.8 (103)	25.5 (85)	28.4 (128)	34.3 (72)	34.7 (156)
Other (N)	51.6 (25)	50.8 (13)	27.2 (23)	25.2 (13)	31.7 (27)	35.0 (27)	56.2 (25)	58.8 (13)	33.8 (23)	30.6 (13)	38.0 (27)	37.7 (27)

B. Longitudinal

Black (N)	N.A.*	N.A.	21.4 (259)	24.0 (260)	25.4 (187)	27.7 (217)	N.A.	N.A.	22.3 (259)	24.6 (260)	27.3 (187)	28.9 (217)
Spanish (N)	N.A.	N.A.	25.2 (40)	23.1 (26)	30.3 (22)	35.6 (25)	N.A.	N.A.	27.5 (40)	27.6 (26)	30.2 (22)	35.4 (25)
White (N)	N.A.	N.A.	26.2 (45)	27.2 (42)	30.6 (17)	31.8 (40)	N.A.	N.A.	24.4 (45)	26.2 (42)	29.6 (17)	31.2 (40)
Other (N)	N.A.	N.A.	27.1 (16)	20.1 (8)	29.2 (16)	32.6 (15)	N.A.	N.A.	34.7 (16)	28.1 (8)	36.8 (16)	35.7 (15)

*N.A. = Nonapplicable

APPENDIX D

MEAN ACHIEVEMENT PERFORMANCE BY RACIAL/ETHNIC GROUP AND SEX IN BASIC ELEMENTARY SAMPLE

A. Cross-Sectional

	Reading Total						Math Total					
	Grade 3		Grade 4		Grade 5		Grade 3		Grade 4		Grade 5	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Black (N)	38.8 (461)	44.5 (516)	21.7 (532)	23.4 (552)	27.8 (572)	29.5 (542)	47.4 (461)	49.4 (516)	21.5 (532)	23.4 (552)	29.6 (572)	32.1 (542)
Spanish (N)	45.0 (115)	48.7 (128)	25.5 (116)	26.0 (126)	28.7 (153)	31.1 (130)	60.6 (115)	61.0 (128)	26.5 (116)	27.6 (126)	32.0 (153)	35.5 (130)
White (N)	54.8 (613)	61.1 (550)	34.0 (628)	36.6 (624)	43.4 (641)	44.0 (592)	62.8 (613)	63.8 (550)	39.2 (628)	32.6 (624)	38.8 (641)	40.8 (592)
Other (N)	52.2 (34)	58.0 (29)	34.4 (38)	33.8 (33)	47.6 (37)	46.2 (43)	63.6 (34)	65.9 (29)	32.9 (38)	34.8 (33)	45.7 (37)	45.3 (43)

B. Longitudinal

Black (N)	NA*	NA	21.9 (438)	23.5 (456)	28.3 (477)	29.8 (457)	NA	NA	21.8 (438)	23.4 (456)	30.0 (477)	32.6 (457)
Spanish (N)	NA	NA	26.0 (76)	26.7 (86)	27.6 (122)	31.0 (92)	NA	NA	26.6 (76)	29.3 (86)	31.8 (122)	35.2 (92)
White (N)	NA	NA	34.7 (422)	37.7 (450)	43.9 (487)	44.3 (453)	NA	NA	30.5 (422)	33.5 (450)	39.1 (487)	40.8 (453)
Other (N)	NA	NA	33.0 (30)	24.6 (34)	49.2 (31)	48.9 (35)	NA	NA	30.9 (30)	25.8 (34)	46.3 (31)	47.4 (35)

*N.A. = Nonapplicable.

APPENDIX D

MEAN ACHIEVEMENT PERFORMANCE BY RACIAL/ETHNIC GROUP AND SEX IN BASIC SECONDARY SAMPLE

A. Cross-Sectional

	Reading Total						Math Total					
	Grade 3		Grade 4		Grade 5		Grade 3		Grade 4		Grade 5	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Black (N)	114.7 (274)	118.4 (344)	119.1 (249)	122.3 (273)	122.7 (202)	129.6 (251)	32.0 (274)	32.8 (344)	34.7 (249)	35.3 (273)	35.6 (202)	37.7 (251)
Spanish (N)	129.7 (15)	122.6 (11)	135.3 (6)	130.6 (18)	157.1 (8)	152.6 (5)	48.0 (15)	36.1 (11)	43.3 (6)	42.2 (18)	51.9 (8)	45.6 (5)
White (N)	142.1 (463)	146.0 (425)	154.2 (394)	157.2 (434)	160.2 (310)	166.2 (342)	51.2 (463)	52.3 (425)	59.5 (394)	57.3 (434)	60.6 (310)	58.6 (342)
Other (N)	115.2 (5)	121.4 (10)	134.4 (8)	119.8 (8)	133.8 (4)	139.8 (6)	52.0 (5)	34.2 (10)	49.1 (8)	33.9 (8)	43.5 (4)	38.2 (6)

B. Longitudinal

Black (N)	NA*	NA	117.4 (117)	122.6 (144)	123.6 (110)	128.2 (140)	NA	NA	35.0 (117)	35.4 (144)	37.8 (110)	38.7 (140)
Spanish (N)	NA	NA	138.0 (1)	146.8 (4)	154.0 (3)	161.3 (3)	NA	NA	30.0 (1)	39.2 (4)	52.3 (3)	51.0 (3)
White (N)	NA	NA	157.1 (116)	162.1 (162)	164.3 (89)	165.5 (119)	NA	NA	63.7 (116)	60.8 (162)	65.2 (89)	56.3 (119)
Other (N)	NA	NA	- (0)	111.5 (4)	- (0)	162.0 (1)	NA	NA	- (0)	33.2 (4)	- (0)	30.0 (1)

*N.A. = Nonapplicable

APPENDIX D

MEAN ACHIEVEMENT PERFORMANCE BY RACIAL/ETHNIC GROUP AND SEX IN PILOT ELEMENTARY SAMPLE

A. Cross-Sectional

	Reading Total						Math Total					
	Grade 3		Grade 4		Grade 5		Grade 3		Grade 4		Grade 5	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Black (N)	37.9 (442)	43.6 (386)	22.0 (553)	22.9 (504)	26.1 (567)	28.0 (571)	50.3 (442)	52.6 (386)	21.8 (553)	24.3 (504)	27.6 (567)	32.0 (571)
Spanish (N)	37.6 (128)	41.9 (120)	23.3 (129)	22.8 (117)	27.5 (145)	29.2 (132)	50.0 (128)	51.3 (120)	23.4 (129)	25.1 (117)	30.3 (145)	33.0 (132)
White (N)	44.4 (96)	49.7 (111)	28.7 (122)	29.8 (91)	35.3 (117)	35.7 (111)	50.5 (96)	56.1 (111)	26.1 (122)	28.8 (91)	34.0 (117)	35.2 (111)
Other (N)	50.5 (19)	52.1 (19)	23.8 (15)	28.4 (21)	32.3 (27)	34.4 (27)	59.2 (19)	54.9 (19)	29.5 (15)	34.9 (21)	35.7 (27)	40.0 (27)

B. Longitudinal

Black (N)	N.A.*	N.A.	22.2 (265)	23.1 (256)	25.6 (215)	27.7 (191)	N.A.	N.A.	22.2 (265)	24.8 (256)	25.9 (215)	30.7 (191)
Spanish (N)	N.A.	N.A.	25.4 (35)	23.3 (31)	35.9 (25)	30.1 (23)	N.A.	N.A.	28.4 (35)	26.5 (31)	33.3 (25)	32.6 (23)
White (N)	N.A.	N.A.	27.0 (48)	26.3 (39)	30.9 (29)	32.0 (28)	N.A.	N.A.	25.8 (48)	24.7 (39)	28.4 (29)	33.2 (28)
Other (N)	N.A.	N.A.	22.0 (11)	27.1 (13)	29.9 (13)	31.6 (18)	N.A.	N.A.	30.6 (11)	34.1 (13)	34.7 (18)	37.4 (18)

*N.A. = Nonapplicable.

APPENDIX E

MEAN EXPENDITURES IN TEN ALLOCATION CATEGORIES FOR CROSS-SECTIONAL SAMPLE PAIRED SCHOOLS

Sample	Group		Reading	Mathematics	Guidance and Counseling	Health Services	New Curricula	Intergroup and Cultural Enrichment	Career Education	Community Activities	Administrative and Auxiliary Services	Other Cost
Basic Elementary	Treatment	$\bar{X}$	92.22	37.85	7.71	1.38	18.91	3.52	0.05	7.33	9.73	8.13
		S.D.	67.21	42.24	18.52	3.94	94.83	14.15	0.29	36.36	14.79	11.10
		N	34	34	34	34	34	34	34	34	34	34
	Control	$\bar{X}$	69.86	26.12	6.74	2.06	10.65	0.78	0.05	0.51	8.15	8.41
		S.D.	54.57	34.20	11.52	3.71	52.76	3.60	0.28	1.78	11.93	14.49
		N	34	34	34	34	34	34	34	34	34	34
Basic Secondary	Treatment	$\bar{X}$	13.20	9.60	2.03	0.0	1.69	1.67	1.62	0.13	2.47	2.05
		S.D.	11.06	14.65	4.32	0.0	4.74	3.96	4.88	0.47	5.65	3.48
		N	20	20	20	20	20	20	20	20	20	20
	Control	$\bar{X}$	4.81	5.13	0.36	0.06	0.53	0.01	0.33	0.04	0.99	0.28
		S.D.	5.76	12.43	1.35	0.27	2.26	0.06	1.18	0.13	2.93	0.63
		N	20	20	20	20	20	20	20	20	20	20
Pilot Elementary	Treatment	$\bar{X}$	113.03	37,89	12.31	2.48	28.50	3.46	0.95	7.38	20.21	20.61
		S.D.	98.00	58,57	35.29	9.93	46.71	10.04	4.13	27.61	23.80	25.47
		N	19	19	19	19	19	19	19	19	19	19
	Control	$\bar{X}$	98.60	34.43	10.82	4.93	10.03	1.72	1.07	4.92	9.76	13.89
		S.D.	80.06	59.40	22.70	14.02	21.04	6.52	4.69	17.21	12.31	20.41
		N	19	19	19	19	19	19	19	19	19	19

APPENDIX E

MEAN EXPENDITURES IN TEN ALLOCATION CATEGORIES FOR LONGITUDINAL SAMPLE PAIRED SCHOOLS

Sample	Group		Reading	Mathematics	Guidance and Counseling	Health Services	New Curricula	Intergroup and Cultural Enrichment	Career Education	Community Activities	Administrative and Auxiliary Services	Other Cost
Basic Elementary	Treatment	$\bar{X}$	92.22	27.85	7.71	1.38	18.91	3.52	0.05	7.33	9.73	8.13
		S.D.	67.21	42.24	18.52	3.94	94.83	14.15	0.29	36.36	14.79	11.10
		N	34	34	34	34	34	34	34	34	34	34
	Control	$\bar{X}$	69.86	26.12	6.74	2.06	10.65	0.78	0.05	0.51	8.15	8.41
		S.D.	54.57	34.10	11.52	3.71	52.76	3.60	0.28	1.78	11.93	14.49
		N	34	34	34	34	34	34	34	34	34	34
Basic Secondary	Treatment	$\bar{X}$	14.48	13.46	4.07	0.0	3.37	0.96	3.37	0.27	3.15	2.31
		S.D.	12.60	19.19	5.49	0.0	6.41	2.34	6.72	0.65	6.28	3.04
		N	10	10	10	10	10	10	10	10	10	10
	Control	$\bar{X}$	3.04	8.53	0.72	0.0	0.06	0.03	0.55	0.08	1.81	0.66
		S.D.	4.37	16.86	1.89	0.0	3.18	0.08	1.66	0.19	4.05	1.07
		N	10	10	10	10	10	10	10	10	10	10
Pilot Elementary	Treatment	$\bar{X}$	88.86	22.55	6.62	0.17	42.64	0.41	1.64	1.43	9.74	16.74
		S.D.	60.36	20.09	10.19	0.57	55.05	1.36	5.43	2.50	8.78	23.49
		N	11	11	11	11	11	11	11	11	11	11
	Control	$\bar{X}$	69.64	21.96	7.31	0.12	11.97	0.0	1.86	0.77	5.19	14.12
		S.D.	38.32	22.69	12.28	0.41	26.33	0.0	6.16	1.79	7.25	25.08
		N	11	11	11	11	11	11	11	11	11	11

APPENDIX F

CORRELATIONS OF EXPENDITURES AND STUDENT NEEDS IN THE BASIC SECONDARY SAMPLE

Treatment

	Initial Reading	Initial Mathematics	Initial TSI	Initial THD1	AD2	PSD	SIR	IAL
Regular District Funds	0.64*	0.63*	0.03	-0.15	0.10	0.43	0.66*	0.45
Total Supplemental	-0.49*	-0.49*	0.07	0.12	-0.35	-0.15	-0.43	-0.29
Total ESAA	-0.57*	-0.59*	-0.03	0.18	-0.10	-0.28	-0.38	-0.34
Total Non-ESAA	-0.22	-0.22	0.12	0.02	-0.43*	0.02	-0.29	-0.14
Total Per-Pupil	0.63*	0.61*	0.04	-0.15	0.07	0.43	0.64*	0.44*

Control

	Initial Reading	Initial Mathematics	Initial TSI	Initial THD1	AD2	PSD	SIR	IAL
Regular District Funds	0.57*	0.48*	-0.06	-0.39*	0.28	0.52*	0.11	0.26
Total Supplemental	-0.30	-1.19	-0.04	-0.26	0.02	-0.59*	0.30	-0.08
Total ESAA	-0.21	-0.24	0.04	-0.35	0.23	-0.55*	-0.17	-0.14
Total Non-ESAA	-0.27	-0.11	-0.08	-0.14	-0.09	-0.39	0.40	-0.03
Total Per-Pupil	0.56*	0.48*	-0.07	-0.42*	0.29	0.51*	0.12	0.26

*Statistically significant, two-tailed, p <.05.

APPENDIX F

CORRELATIONS OF EXPENDITURES AND STUDENT NEEDS IN BASIC ELEMENTARY SAMPLE

A. Treatment

	Initial Reading	Initial Mathematics	Initial TSI	Initial TP
Regular District Funds	0.54*	0.47*	-0.07	-0.01
Total Supplemental	-0.13	-0.01	0.16	0.16
Total ESAA	-0.21	-0.13	0.15	0.13
Total Non-ESAA	-0.05	0.04	0.11	0.11
Total Per-Pupil	0.46*	0.43*	-0.01	0.04

B. Control

	Initial Reading	Initial Mathematics	Initial TSI	Initial TP
Regular District Funds	0.58*	0.60*	-0.02	0.04
Total Supplemental	-0.09	-0.05	-0.01	-0.09
Total ESAA	0.28	0.24	0.06	-0.02
Total Non-ESAA	-0.15	-0.00	-0.03	-0.09
Total Per-Pupil	0.53*	0.56*	-0.02	0.02

*Statistically significant, two-tailed, $p < .05$.

APPENDIX F

CORRELATIONS OF EXPENDITURES AND STUDENT NEEDS IN PILOT ELEMENTARY SAMPLE

A. Treatment

	Initial Reading	Initial Mathematics	Initial TSI	Initial TP
Regular District Funds	0.10	-0.14	-0.33	-0.10
Total Supplemental	0.14	0.04	-0.01	0.04
Total ESAA	0.24	0.18	-0.01	0.09
Total Non-ESAA	0.04	-0.10	-0.00	-0.01
Total Per-Pupil	0.17	-0.09	-0.27	-0.06

B. Control

	Initial Reading	Initial Mathematics	Initial TSI	Initial TP
Regular District Funds	0.38	0.08	-0.16	0.19
Total Supplemental	-0.04*	-0.44*	0.14	0.39
Total ESAA	-0.35	-0.36	0.13	0.26
Total Non-ESAA	-0.39*	-0.46*	0.12	0.48*
Total Per-Pupil	0.11	-0.15	-0.06	0.35

*Statistically significant, two-tailed, $p < .05$.

APPENDIX G

MEAN ACHIEVEMENT SCORES FOR STUDENTS WHO HAVE BEEN IN THE EVALUATION SAMPLE FOR TWO YEARS

Program	Grade Year 1/ Year 2	Treatment Control	Year 1				Year 2			
			Pretest		Posttest		Pretest		Posttest	
			Reading	Math	Reading	Math	Reading	Math	Reading	Math
Pilot	3/4	Treatment	309.38	280.76	330.67	313.68	327.05	314.78	349.19	343.14
		Control	315.55	287.59	337.58	318.83	337.77	323.46	360.75	350.24
	4/5	Treatment	323.40	310.64	347.09	338.61	367.73	351.26	377.66	371.44
		Control	322.56	310.62	350.46	342.68	369.23	359.96	387.27	383.93
Basic	3/4	Treatment	332.57	296.67	356.13	330.78	357.69	334.61	380.14	363.05
		Control	331.69	295.36	353.52	331.02	358.96	335.32	377.44	358.91
	4/5	Treatment	356.22	332.65	381.40	363.20	399.99	380.03	415.05	399.18
		Control	352.80	331.60	379.00	359.60	395.67	375.82	409.58	393.15
	10/11	Treatment	133.54	494.43	135.79	529.97	141.94	533.23	138.46	529.42
		Control	138.84	516.88	140.17	538.40	145.44	551.48	144.20	547.18
	11/12	Treatment	143.09	520.48	144.76	545.22	149.17	533.59	145.13	544.21
		Control	138.26	518.10	140.67	537.36	141.49	535.03	142.72	539.89

APPENDIX H-1

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGMBTXT										.134*		
REGMOTXT	.082			.148					-.002		-.103	
REGMDRLL						.164*			.101*		.34*	.129*
REGMAVIS	.095*		.169*	.100								-.112
REGMBMCE		.157*			-.082*		-.130*					
REGMBSKE									-.060			
REGMATTN												
REGMTERM									-.074*	-.156*		-.114
REGMMAT	.109*			.173*								.128
REGMTEST												
REGMADDI												-.140*
REGMSTD												
SLMNM02	-.100*			-.100	-.081*	-.121	-.185*	-.081	.063			
SLMNM05		.131	.129			-.109						
SLMNM06									-.079*		-.083	-.097
TOTREAD												
TOTMATH							.136*					
$READ	.084		.188*		-.101*							
$MATH	.144*			.133*	.175*		.157*			.111		
$TOTAL	-.221*		-.245*	-.174*			-.205*		-.086*			
ENROLL	-.152*		-.151*	-.281*			-.110					

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-1 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: TOTAL RESIDUAL SCORES (CONT.)

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
PPCTITL1						-.177*						.118*
SACTD											.124*	
PRATIO	-.105*				.103*			.201*				
FAXPANY	-.088*			-.130*						.094		
FAWARM			-.117									
RAFLXBL	-.075*			-.084								
FASPMAT												
ESTSUPP			.115									
TFAISRD					.059							
DIFFRM			-.114									
ESTXPECT	.130*	.138	.214*	.155*	.143*		.193*	.214*	.100*		.105	.111*
ESHHRESR				.082								
ESHHRESM												
ESBELNG			.106		-.055			-.102				
ESIELOC												
ESTWT					-.067				-.050*		-.107*	
GAINCLA		-.202*										
GAINCLB									-.166*	-.207*	-.133*	-.187*
Y2ESQA1												
Y2ESQB1							-.092*					-.103
N	1203	270	335	598	1465	337	534	594	1515	367	619	529
R	.391	.336	.454	.484	.278	.278	.405	.303	.272	.303	.286	.360

APPENDIX H-2

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE READING CHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGRPROF												
REGRNPRF	-.083									.292*		
REGRLING		-.194*	-.108		.066		-.132*					
REGRMED												
REGRWORD		.119		.102								
REGRGLBL												
REGRCOMP	.088*											
REGRTEST										.145*		
REGRDIAG												
REGRSIZE	.076		.093				.112					
REGRAIDS	.159*		.157*							-.164		
SLMNR02	-.057*	-.145			-.081*		-.178*		-.057			-.115*
SLMNR06								.071				
SLMNR07	.104*		.119	.122*								
TOTREAD								.068	.090*			.132*
TOTMATH	.079*											
$READ		-.156			-.063			-.083	.064			.133*
$MATH			.143*		.193*	.146*	.228*	.145*				.120*
$TOTAL									-.072*	-.123		
ENROLL												
PPCTITL1												

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-2 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE READING ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
PPCTITL1												
SACTD		.176*			-.099*			-.138*	-.073*			
PRATIO	.102*			.097	.179*		.125	.247*				
FAXPANY												
FAWARM					.054							
RAFLXBL								-.074				
FASPRD				.099								
ESTSUPP												
TFAISRD									.056			
DIFFRM	-.101*		-.111		.053		.123	-.148*				.193*
ESTXPECT	.162*		.219*	.189*	.164*		.219*	.252*	.186*	.243*	.231*	.152*
ESHHRESR												.093
ESHHRESM												
ESBELNG												
ESIELOC									.046			
ESTWT	.060				.056			.091*	.104*	.119	.087	.132*
GAINCLA										-.149*		
GAINCLB						-.111			-.127*		-.118*	-.148*
Y2ESQA1										-.108		
Y2ESQB1												
N	1193	280	368	545	1465	360	383	722	1515	364	604	547
R	.297	.302	.381	.328	.345	.255	.383	.484	.295	.424	.283	.380

APPENDIX H-3

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE READING ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGRPROF												
REGRNPRF									-.04670	.18661*		
REGRLING			-.12563									
REGRMED												
REGRWORD				.10768								
REGRGLBL												
REGRCOMP	.08973*	.12832										
REGRTEST										.13337*		
REGRDIAG												
REGRSIZE							.12459					
REGRAIDS	.05964											
SLMNR02								-.11087*	-.05886			
SLMNR06					.06913*		.09820	.09761*				
SLMNR07												
TOTREAD									.10586*			
TOTMATH												
$READ												.10387
$MATH									-.05321			.14687*
$TOTAL					.12511*	.14261*		.09180				
ENROLL												
PPCTITL1												

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-3

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE READING ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES (CONT.)

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
SACTD									-.05818			
PRATIO					.16622*			.22055*				
FAXPANY												
FAWARM					.05759			.09199*				
FAFLXSL								-.07276				
ESTSUPP												
EFAISAD												
DIFFRM	-.08064*	-.13627					.10844	.11868*	.06192			.17999*
ESTXPECT	.14795*		.24908*	.17763*								
ESHHRESR												
ESHHRESM												
ESBELNG												
ESIELOC												
ESTWT	.06583			.09273	.05062*			.08280	.09610*	.11918	.08470	.11274*
GAINCLA						-.13788*			-.13650*	-.15270		-.13083*
GAINCLB					-.05518						-.12493*	
Y2ESQA1				-.09804		-.11377				-.12849		
Y2ESQB1												
N	.19056	.18319	.27117	.25467	.24943	.22180	.26820	.39996	.28672	.39182	.26502	.33477
R	1193	280	368	545	1465	360	383	722	1515	364	604	547

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-4

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE READING ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGRPROF												
REGRNPRF	-.083									.292*		
REGRLING		-.194*	-.108		-.066		-.132*					
REGRMED												
REGRWORD		.119		.102								
REGRGLBL												
REGRCOMP	.088*											
REGRTEST										.145*		
REGRDIAG												
REGRSIZE	.076		.093				.112					
REGRAIDS	.159*		.157*							-.164		
SLMNR02	-.057*	-1.45			-.081*		-.178*		-.057			-.115*
SLMNR06								.071				
SLMNR07	.104*		.119	.122*								
TOTREAD								.066	.090*			.132*
TOTMATH	.079*											
$READ		-.156			-.063			-.083	.064			.133*
$MATH			.143*		.193*	.146*	.228*	.145*				-.120*
$TOTAL			-.158*						-.072*	-.123		
ENROLL												
PPCTITL1												

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-4 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE READING ACHIEVEMENT: TOTAL RESIDUAL SCORES (CONT.)

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
SACTD		.176*			-.099*			-.138*	-.073*			
PRATIO	.102*			.097*	.179*		.125*	.247				
FAXPANY												
FAWARM					.054							
FAFLXSL								-.074*				
ESTSUPP												
TFAISAD									-.074*			
DIFFRM	-.101*		-.111		.053		.123	-.148*				.193*
ESTXPECT	.162*		.219*	.189*	.164*		.219	.252*	.186*	.243*	.231*	.152*
ESHHRESR												.093
ESHHRESM												
ESBELNG												
ESIELOC									.046			
ESTWT	.060				.056			.091*	.104*	.119	.087	.132*
GAINCLA										-.149		
GAINCLB						-.111			-.127*		-.118*	-.148*
Y2ESQA1										-.108		
Y2ESQB1												
FASPRD								.099				
N	1193	280	368	545	1465	360	383	722	1515	364	604	547
R	.297	.302	.381	.328	.345	.255	.383	.484	.295	.424	.283	.380

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-5

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGMBTXT												
REGMOTXT				.09442			-.12299*					
REGMDRLL						.15264*			.05078			.11250*
REGMAVIS			.12556									
REGMBMCE				-.10307			-.14365*					
REGMBSKE												
REGMATTN												
REGMTERM									-.07395*			-.12037*
REGMMAT	.09672			.13384*			.13272*					
REGMTEST												
REGMADDI												-.12631*
REGMSTD												
SLMNM02				-.08717	-.5354		-.11972*					
SLMNM05							.10602					
SLMNM06			.13523									
TOTREAD		.12037										
TOTMATH							.10024					
$READ	.10871*		.17028*	.08340		-.14765*						
$MATH												
$TOTAL			-.17252*									
ENROLL				-.16972*								

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-5 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
PPCTITL1							.12186*					
SACTD												
PRATIO												
FAXPANY												
FAWARM												
RAFLXBL												
FASPMAT												
ESTSUPP			.11456									
TFAISRD							.12551*	.08903				
DIFFRM												
ESTXPECT	.15208*		.15592*	.20494*	.15694*		.23103*	.20683*	.08430*			.10242
ESHHRESR												
ESHHRESM												
ESBELNG					-.06768							
ESIELOC												
ESTWT												
GAINCLA		-.22267*				-.17062						
GAINCLB									-.15374*		-.13248*	-.15274*
Y2ESQA1								.10897*		-.17758*		
Y2ESQB1										.11258		
N	1203	280	335	598	1465	337	534	594	1515	367	619	529
R	.19705	.23868	.34740	.33577	.18680	.21906	.37023	.25729	.19581	.22314	.13248	.27015

APPENDIX H-6

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE READING ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGRPROF												
REGRNPRF										.3044*		
REGRLING		-.1936*	-.1097		-.0634							
REGRMED												
REGRWORD		.1390										
REGRGLBL												
REGRCOMP	.0836*			4.109								
REGRTEST												
REGRDIAG												
REGRSIZE	.0847*		.1200			-.1086	.1270					
REGRAIDS	.1164*		.1522							-.1928		
SLMNR02	-.0696				.0768*			-.1720*	-.0735*	-.1373*		-.1353*
SLMNR06					.0654			.0777				
SLMNR07	.0995*			9.127*								
TOTREAD									.1286*			.1174
TOTMATH				7.313*						.1082		
$READ					-.0762*		-.1062	-.0861	.0560			.1585*
$MATH	.0938*		.1703		.1742*	.1120	.2646*	.1379*				-.1051
$TOTAL	-.0899*								-.0601	-.1201		
ENROLL												
PPCTITL1												

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

-Indicates variable had a significant coefficient in results of Year One Analyses but non-significant in present sample.

APPENDIX H-6 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE READING ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
SACTD		.1728			-.1219*		-	-.1513*	-.0621			
PRATIO					.1876*			.2481*				
FAXPANY					.0673*							
FAWARM								.0880				
FAFLXSL								-.0743				
ESTSUPP												
TFAISAD												
DIFFRM	-.0987*				.0503		.1037	.1402*	.0553		-.1592*	.2034*
ESTXPECT	.1332*		.2749*	-.2057*	.1553*		.1850*	.2458*	.1912*	.2482*	.2703*	.1744*
ESHHRESR	.0965											
ESHHRESM	-.0864											
ESBELNG												
ESIELOC												.0839
ESTWT	.0671							.0854	.0947*	.1281		.1249*
GAINCLA					-.0519	-.1263				-.1591*		
GAINCLB									-.1326*		-.1422*	-.1417*
Y2ESQA1						-.1287				-.1092		
Y2ESQB1								-				
R	.3055	.2987	.3762	.2977	.3575	.2612	.3589	.4884	.2995	.4359	.3844	.3885
N	1193	280	368	545	1465	360	383	722	1515	364	604	547

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

-Indicates variable had a significant coefficient in results of Year One Analyses but non-significant in present sample.

APPENDIX H-7

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGMBTXT						.1331*				.1277		
REGMOTXT				.1422*					-.0563		-.0929	
REGMDRLL						.2245*			.0780*		.1344*	.1488*
REGMAVIS	.0851*		.1843*			.1082						
REGMBMCE		.1627*			-.0851*		-.1954*					
REGMBSKE												
REGMATTN												
REGMTERM									-.0883*	-.1384		
REGMMAT	.1041*			.1730*								
REGMTEST												
REGMADDI									-.0554			-.1482*
REGMSTD												
SLMNM02	-.0968*			-.0979	-.0775*		-.1872*		.0728*			
SLMNM05		.1496	.1237									
SLMNM06									-.0735			-.0960
TOTREAD						-.1360						
TOTMATH							.1003					
$READ	.0965*		.2025*		-.1192*	-.2446*	-.1536*					
$MATH	.1386*			.1777*	.1716*	.2243*	.2718*					
$TOTAL	-.1896*		-.2717	-.1535*				.1054	-.0830*			
ENROLL	-.1706*			-.2670*								

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.
-Indicates variable had a significant coefficient in results of Year One Analyses but non-significant in present sample.

APPENDIX H-7 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR PILOT ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
PPCTITL1						-.1558*						.1000
SACTD						.1219					.1082*	
PRATIO	-.2466*				.0944*			.1856*				
FAXPANY				-.1243*			.2992*					
FAWARM			-.1118				-.2344*					
RAFLXBL	-.2231			-.2632*		-.1276						
FASPMAT												
ESTSUPP	.2371*		.1055									
TFAISRD					.0601			.0819				
TFAFLXBL	.17022			.2010			.1652					
DIFFRM												
ESTXPECT	0.1307*	.1361	.1992*	.1634*	.1438*		.1981*	.2209*	.1051*		.0901	.1059
ESHHRESR												
ESHHRESM												
ESBELNG	.0605		.1067		-.0628			-.0913				
ESIELOC												
ESTWT					-.0675*				-.0544		-.1215*	
TPAXPANY										.1159		
GAINCLA		-.2056										
GAINCLB	-.0628								-.1633*	-.2143*	-.1385*	-.1713*
Y2ESQA1												
Y2ESQB1							-.1086*					
N	1203	280	335	598	1465	337	534	594	1515	367	619	529
R	.3891	.3441	.4455	.4831	.2766	.3511	.4431	.2944	.2709	.3145	.2680	.3458

APPENDIX H-8

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE READING ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGRPROF								-.071				
REGRNPRF					-.045							
REGRLING												
REGRMED												
REGRWORD					.045							
REGRGLBL										.081		
REGRCOMP												
REGRTEST												
REGRDIAG									.047		0.063	
REGRSIZE												
REGRAIDS												
SLMNR02					-.061*		-.065	-.101*			-0.075	-.115*
SLMNR06			.086*		.050							-0.067
SLMNR07					.064*					-.118*		
TOTREAD		-.087										
TOTMATH					-.081*		-.089*					0.079
$READ	-.049	-.098							-.056*	-.155*		-0.99*
$MATH				-.085	.054*			.064		.107		
$TOTAL												
ENROLL									0.58*		0.068	
PPCTITL1	-.071*	-101*				-.081					-0.066	

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-8 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE READING ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
SACTD												
PRATIO									-0.041			
FAXPANY												
FAWARM												
FAFLXSL												
FASPRAD										.081		
ESTSUPP												
TFAISAD	.060*	.093		.136*								
DIFFRM	-.052	-.173*				-.107*		.200*		-.097		0.077
ESTXPECT	.176*	.209*	.206*		.151*	-.089	.297*	.172*	.079*	.087	0.138*	0.131*
ESHHRESR			.093*									
ESHHRESM												
ESBELNG												
ESIELOC								.110*		.105*		
ESTWT	.088*		.100*	.070	.077*		.113*	.171*	0.100*		.187*	0.082
GAINCLA		-.170*			-.051*			-.350*	-.108*			-0.276*
GAINCLB	-.123*		-.077	-.101*				.238			-0.074	
Y2ESQA1				-.072		.091	-.084*	-.077				
Y2ESQB1			.077									
N	2366	630	883	853	2575	635	1025	915	2575	675	1020	880
R	.26	.386	.316	.245	.247	.197	.361	.425	0.219	0.250	0.288	0.367

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-9

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGMBTXT				-.081		-.085			-.049			.083
REGMOTXT												
REGMDRLL	-.084*		-.106*			.106						
REGMAVIS												
REGMBMCE							-.072		.066*		.078	.089*
REGMBSKE	.043			.079								
REGMATTN			.085*									
REGMTERM					.076*	.104*		.096*				
REGMMAT	.050	.143*										
REGMTEST								-.076				
REGMADDI												
REGMSTD												
SLMNM02					-.042							
SLMNM05								-.067	-.049		.083*	.093*
SLMNM06			-.087*						-.044			
TOTREAD	-.042		-.093*		-.052	-.072		-.101*				
TOTMATH									.042		.071	
$READ												
$MATH										.128*		
$TOTAL			.076						-.079*			-.073
ENROLL		.104							.048	.152*		

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-9 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
PPCTITL1												
SACTD												
PRATIO		-.167*			.071*				-.051			
FAXPANY	.045		.070									
FAWARM	.046		.069		.041							
RAFLXBL								.063				
FASPMAT		.109						-.074				
ESTSUPP	.074*		.067	.073								
TFAISRD	.081*		.083*	.084								
DIFFRM	-.056*											
ESTXPECT	.167*	.273*	.121*	.078	.113*	.164*	.169*	.099*	.093*	.130*		.079
ESHHRESR												
ESHHRESM												
ESBELNG			-.072				-.113*					
ESIELOC												
ESTWT	.050	.115*										
GAINCLA			-.095*	-.122*			-.073	-.213*	-.145*	-.102	-.123*	-.192*
GAINCLB	-132*		-.163*		-.107							
Y2ESQA1						-.091	-.074					
Y2ESQB1						-.090		-.090*				
N	3366	497	959	910	2575	548	1096	931	2553	591	1071	891
R	.279	.380	.348	.221	.247	.280	.270	.334	.222	.259	.188	.282

APPENDIX H-10

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE READING ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGRPROF						.08825		-.06874				
REGRNPRF				.15069*								
REGRLING												
REGRMED												
REGRWORD			-.07969		.04334		.07505					
REGRGLBL												
REGRCOMP												
REGRTEST												
REGRDIAG			.08786*									
REGRSIZE												
REGRAIDS				-.11755								
SLMNR02		-.09545						-.06085				-.10234*
SLMNR06			.10009*				.08943*		-.15743*			-.26304*
SLMNR07					-.04226				-.07158*	-.08754		
TOTREAD												.06843
TOTMATH							-.06706					
$READ												-.07330
$MATH									-.04098			
$TOTAL												
ENROLL												
PPCTITL1										.07697		

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-10 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE READING ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
PPCTITL1												
SACTD												
PRATIO			.07451									
FAXPANY												
FAWARM									.04332			
RAFLXBL												
FASPMAT												
ESTSUPP												
TFAISRD	.04910	.08580	.06868	.11549*								
DIFFRM		-.16321*	.06289			-.10461*		.20259*		-.11819*		.08727*
ESTXPECT	.16777*	.20237*	.21798*	.07619	.18013*	.07991	.29586*	.18295*	.09392*	.09608	.15136*	.12314*
ESHHRESR			.08403									
ESHHRESM												
ESBELNG					-.03851							
ESIELOC								.10672*		.09649		
ESTWT	.05462*		.09651*		.04694		.06510	.11614*	.07583*		.14466*	
GAINCLA		-.15940*	-.09565*		-.04494			-.30299*	-.09875*			-.24005*
GAINCLB	-.11355			-.09695*				.21849			-.06082	
Y2ESQA1						.10095	-.07418					
Y2ESQB1			.10660*									
N	2306	630	883	853	2575	635	1025	915	2575	675	1020	880
R	.22845	.34779	.34851	.18981	.04345	.18950	.33867	.37987	.25357	.20631	.22206	.44361

APPENDIX H-11

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGMBTXT								.06905				
REGMOTXT												.08084
REGMDRLL	.05078					.10457			.05912*			.07601
REGMAVIS												
REGMBMCE							-.08070		.04288			
REGMBSKE				.07558								
REGMATTN			.07841									
REGMTERM	-.07395*				.06307*		.09366*					
REGMMAT		.09087										
REGMTEST												
REGMADDI									-.05678			
REGMSTD								-.06972				
SLMNM02	-.04523											
SLMNM05								-.07176		-.08979	.06136	
SLMNM06			-.07681									
TOTREAD												
TOTMATH												
$READ								-.07178				
$MATH					-.04211							
$TOTAL							-.06855					
ENROLL	.04113											

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-11 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
PPCTITL1												
SACTD					-.04602							
PRATIO												
FAXPANY	.06356*		.06143									
FAWARM												
RAFLXBL							-.05823					
FASPMAT	.04643							-.07214				
ESTSUPP	.08195*		.08302*	.08143					.01265			
TFAISRD	.04882											
DIFFRM												
ESTXPECT	.15803*	.26159*	.12151*	.07175*	.13689*	.17399*	.18216*	.12422	.07698*	.14783*		
ESHHRESR												
ESHHRESM												
ESBELNG					-.04140		-.09900*					
ESIELOC												
ESTWT		.09282								-.09230		
GAINCLA			-.10887*		-.12509*			-.22842*	-.13531*	.11627*	-.08920*	-.18366*
GAINCLB	-.12688*		-.14994*	-.11265*			-.07034					
Y2ESQA1						-.09033						
Y2ESQB1			.06567		-.05532*							
N	2366	497	959	910	2575	548	1096	931	2553	591	1071	691
R	.24401	.30258	.31691	.16670	.21586	.22856	.26183	.30251	.18305	.21396	.10627	.22928

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APPENDIX H-12

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE READING ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGRPROF								-.0742				
REGRNPRF												
REGRLING					-.0412				.0464	.0831	.0743	
REGRMED												
REGRWORD				.0425								
REGRGLBL												
REGRCOMP												
REGRTEST												
REGRDIAG									.0430			
REGRSIZE												
REGRAIDS												
SLMNR02		-.1062*	.0694		-.0604*			-.1047*			-.0858*	-.1184*
SLMNR06		.1026*		.0435			.0897*		-.1601*			-.3016*
SLMNR07				-.0661*					-.0710*	-.1105*		
TOTREAD												.0730
TOTMATH					-.0785*		-.1134*					
$READ		-.0968						.0653	-.0539*	-.1342*		-.0850*
$MATH	-.0483			.0708	.0549*	.0984				.1110*		
$TOTAL											-.1088*	
ENROLL									.0468			
PPCTITL1	-.0612*		-.1152*	-.0756		-.0971					-.0894*	

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.
-Indicates variable had a significant coefficient in results of Year One Analyses but non-significant in present sample.

APPENDIX H-12 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE READING ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
SACTD						.0880						
PRATIO											-.0704	
FAXPANY											.0609	
FAWARM												
FAFIXSL												
FASPAD		.0913										
ESTSUPP									-.0950			
TFAISAD	.0793*			.1261*								
DIFFRM	-.0549	-.1813*				-.1050*		.2018*	-.1105*		-.2147*	.0878
ESTXPECT	.1769*	.2038*	.2087*	.0673	.1491*	.0906	.2904*	.1723*	.0821*	.0902	.1458*	.1239*
ESHHRESR			.9835*									-.0752
ESHHRESM												
ESBELNG												
ESIELOC								.1082*	.0462	.1096*	.1697*	
ESTWT	.0834*		.0998*	.0707	.0851*		.1230*	.1709*	.1039*			.0850
GAINCLA		-.1608*			-.0512*			-.3500*	-.1112*			-.2676*
GAINCLB	-.1230		-.0755	-.1107*				.2382		-.0689		
Y2ESQA1				-.0685			-.0705	-.0794				
Y2ESQB1			.0797									
N	2366	630	883	853	2575	635	1025	915	2575	675	1020	880
R	.0713	.1573	.1060	.0580	.0608	.0388	.1388	.1797	.0817	.0736	.1261	.2267

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

-Indicates variable had a significant coefficient in results of Year One Analyses but non-significant in present sample.

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APPENDIX H-13

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
PPCTITL1												
SACTD										.1517*		
PRATIO		-.1549*			.0755*				-.0632	-.1680*		
FAXPANY	.0495		.2092*									
FAWARM	.4500											
RAFLXBL												
FASPMAT		.0986										
ESTSUPP	.0640*		.0664	.0765								
TFAISRD	.0781*		.0871*	.0840								
TFASPMAT	.0453							-.0863*				
DIFFRM	-.0521											
TFAWARM		.1070			.0629*		.0623	.0770				
ESTXPECT	.1641*	.2890*	.1257*	.0766	.1123*	.1728*	.1554*	-.1001*	.0883*	.1369*		.0720
ESHHRESR												
ESHHRESM												
ESBELNG					-.0509		-.1118*					
ESIELOC												
ESTWT	.0472	.1171*										
TFAXPANY			-.1825*									
GAINCLA			-.0991*					-.2234*	-.1449*	-.1150*	-.1170*	-.1936*
GAINCLB	-.1316*		-.1597*	-.1247*	-.1079		-.0826*					
Y2ESQA1						-.0947		-.0929*				
Y2ESQB1					-.9567*	-.0874	-.0617					
TFAFLXBL										.1149*		
N	2366	497	959	910	2575	548	1096	931	2553	591	1071	891
R^2	.0808	.1571	.1356	.0448	.0651	.0886	.0822	.1143	.0500	.1088	.0333	.0780

APPENDIX H-13 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC ELEMENTARY SAMPLE MATHEMATICS ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 3				Grade 4				Grade 5			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGMBTXT				-.0763								-.0805
REGMOTXT												
REGMDRLL	-.0859*		.1130*			.1077						
REGMAVIS												
REGMBMCE									.0863*		.0692	.0943
REGMBSKE	.0493			.0840					-.0397			
REGMATTN			.0897*									
REGMTERM					.0782*		.0911*	.0906*				
REGMMAT	.1251*											
REGMTEST								.0777				
REGMADDI												
REGMSTD												
SLMNM02												
SLMNM05									.0544*	-.0922	.0979*	.0999*
SLMNM06			-.0878*							-.0889		
TOTREAD	-.0425		-.0848*		-.0433		-.0739	-.0810				
TOTMATH												
$READ												
$MATH										.1045		
$TOTAL	.0579		.0990						-.0875*			
ENROLL	.0549	.1058							.0571	.1816*		

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.
-Indicates variable had a significant coefficient in results of Year One Analyses but non-significant in present sample.

APPENDIX H-14

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE READING ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGRPROF		-.145										
REGRNPRF												
REGRLING												
REGRMED												
REGRWORD												
REGRGLBL							-.094					
REGRCOMP		-.205										
REGRTEST	-.084										-.123	
REGRDIAG												
REGRSIZE												
REGRAIDS												
SLMNR02									-.068			-.132
SLMNR06	.050											
SLMNR07	.061	.178				.181						
SACTD					.090		.149	.112	.088			.115
TOTREAD									-.058			
TOTMATH					-.057		-.120					
PRAT10	-.102		-.108	-.149	-.079		-.097	-.085				
$READ	-.094		-.099									
$MATH					-.082		-.103			.130	-.117	
$TOTAL	.106		.131									
ENROLL	-.072		-.163									.118
PPCTITL1	.976											

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-14 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE READING ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 10				Grade 11				Grade 12			
	Total	[illegible]	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
FAXPANY												
FAWARM												
FASPRD					-.077		-.126				-.108	
FAFLXBL								.080			-.174	
SSINSTRT	.044											
TFAISRD	.061			.088		.138						
DIFFRM	.079			.178								
SSTXPECT	.075			.098		.111						.119
SSHHRESR												.134
SSHHRESM				-.094								
SSBELONG											.115	
SSLELOC				.127								
SSTWT			-.113			.148						
GAINCLA												
GAINCLB												
GAINCLC												
GAINCLD												
Y255CA1	.056			.146								.098
Y255CB1												
Y255CC1	-.059				.084				.079			
Y255CD1								.144				
N	1566	305	637	624	1412	284	552	576	1075	225	420	430
R	0.262	.241	.219	.344	.195	.277	.282	.229	.197	-	.241	.332

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-15

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE MATHEMATICS ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGMBTXT										-.120		
REGMOTXT												
REGMDRLL		-.100	.114		-.085					-.115		
REGMAVIS												
REGMBMCE	.052		.115									
REGMBSKE												
REGMATTN									-.062	-.134	-.131	
REGMTERM												
REGMMAT												
REGMTEST								-.095				
REGMADDI		-.093			.071							
REGMSTD												
PPCTITL1	.136	.265					-.097		-.137	-.229		
SLMNM02												
SLMNM05												
SLMNM06												
PRATIO	-.081		-.078	-.104	-.091	-.107			-.073			-.137
TOTREAD	-.119			-.185	-.092				-.066			
TOTMATH	.099			.124	.102				.101			.096
$READ									.230	.378		
$MATH				.128				-.117	.080	-.118		
$TOTAL									-.075			-.124
ENROLL						.122						

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-15 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE MATHEMATICS ACHIEVEMENT: TOTAL RESIDUAL SCORES

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
FAXPANY												
FAWARM			-.095									
FASPMAT					.071		.102	.111	.087	.178	.153	
FAFLXBL								-.098				
SSINSTRT	.051											
TFAISRD									.060			
DIFFRM		.171	-.108	.143		.167	-.099					-.219
SSTXPECT	.073								.093	.156	-.271	
SSHHRESR				.162			.083					
SSHHRESM												
SSBELONG									.064			
SSLELOC												
SSTWT						.116				.135		
GAINCLA	-.221		-.363								-.187	
GAINCLB		-.137		-.189	-.089		-.213					-.331
GAINCLC										-.248		
GAINCLD									-.231			
Y255CA1												
Y255CB1												
Y255CC1	-.059		-.100									
Y255CD1	.062	.138		.121	.089			.175				
N	1566	430	619	517	1412	385	555	472	1075	272	445	358
R	.320	.409	.445	.375	.240	.289	.286	.297	.373	.621	.397	.447

APPENDIX H-16

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE READING ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGRPROF												
REGRNPRF												
REGRLING												
REGRMED												
REGRWORD												
REGRGLBL												
REGRCOMP			.09245									
REGRTEST												
REGRDIAG												
REGRSIZE												
REGRAIDS												
SLMNR02									-.06649			-.14277*
SLMNR06	.05330											
SLMNR07	.06156	.14937*				.17501*						
TOTREAD												
TOTMATH							-.10088					
$READ	-.09435*	-.19261*	-.09803									
$MATH												
$TOTAL												
ENROLL		-.18137*	-.15673*									.11248
SACTD						-.14139						

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-16 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE READING ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
FAXPANY												
FAWARM					.06003		.08871					
FASPARD					.06814		-.10355					
FAFLXBL									-.06650			
SSINSTRT												
TFAISRD				.07737								
DIFFRM	.06554			.15399*								
SSTXPECT	.08033*			.10289		.12778						.11099
SSHHRESR												-.11283
SSHHRESM		.11396										
SSBELONG									.06987		.13119*	
SSLELOC	.06227		.07822	.09187	.05683							
SSTWT			-.09648			.18087*				-.13331		
GAINCLA												
GAINCLB												
GAINCLC												
GAINCLD												
Y255CA1	.06283			.16746*					.07973			
Y255CB1									-.06542			
Y255CC1	.02389											
Y255CD1					.08002*	.14134		.14698				
N	1566	305	637	624	1412	284	552	576	1075	225	420	430
R	.20525	.28138	.19049	.26569	.14242	.31765	.17971	.16499	.02030	.13331	.13119	.24726

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-17

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE MATHEMATICS ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGMBTXT										-.12150		
REGMOTXT												
REGMDRLL			.07935		-.07855*							
REGMAVIS												
REGMBMCE			.08388									
REGMBSKE												
REGMATTN									-.08011*		-.14194*	
REGMTERM												
REGMMAT												
REGMTEST												
REGMADDI		-.14544*			.05645							-.10039
REGMSTD										-.11023		
SLMNM02												
SLMNM05												
SLMNM06												
PPCTITL1			.13075*				-.12331*		-.09760*	-.15314*		
TOTREAD				-.18807*	-.09972*		-.14878*					
TOTMATH				.14889	.12879*		.19338*		.07261			
$READ				.08581					.13401*	.25210*		
$MATH							.09597					
$TOTAL									-.06485			-.13558*
ENROLL										.14667		

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-17 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE MATHEMATICS ACHIEVEMENT: WITHIN DISTRICT RESIDUAL SCORES

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
FAXPANY												
FAWARM												
FASPARD												
FAFLXBL												
FASPMAT								.12147*			.12380*	
TFAISRD												
DIFFRM		.19056*	-.12320*			.17764*	-.08775			.08981	-.23332*	-.19856*
SSTXPECT		.07071*				.09992			.09767*	.14847*		
SSHHRESR			.10014		.14468*							
SSHHRESM										.12253		
SSBELONG									.06123			
SSLELOC												
SSTWT		.10490		-.09344		.12779				.14768*		
GAINCLA	-.23677*		-.27428*				.29583				-.18381*	
GAINCLB				-.18866*	-.08647*	-.10334	-.48468*					
GAINCLC		-.13793*							-.22790*	-.23716*		-.34502*
GAINCLD												
Y255CA1												
Y255CB1												
Y255CC1												
Y255CD1	.05819	.12338*		.10237	.09311*			.19560*				
N	1566	430	619	517	1412	385	555	472	1075	272	445	358
R	.25804	.37284	.41111	.30831	.19452	.26552	.33532	.22639	.31623	.53284	.35812	.44243

APPENDIX H-18

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE READING ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGRPROF											.2583	
REGRNPRF												
REGRLING												
REGRMED												
REGRWORD								-.0863				
REGRGLBL							-.0968					
REGRCOMP												
REGRTEST	-.0834*											
REGRDIAG												
REGRSIZE												
REGRAIDS												
SLMNR02									-.0689			-.1302*
SLMNR06												
SLMNR07	.0719*	.1782*				.1684*						
SACTD					.0855*		.1648*	.1110	.0744			
TOTREAD												
TOTMATH							-.1232*					
PRATIO	-.1026*		-.1358*	-.1468*	-.0813*		-.0884	-.1053				-.1227
$READ	.0819*											
$MATH					-.0888		-.1296					
$TOTAL	.0963*		.1211*								.1152	
ENROLL	-.0708		-.1243*									.1734*
PPCTITL1	.0744*											

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.
-Indicates variable had a significant coefficient in results of Year One Analyses but non-significant in present sample.

APPENDIX H-18 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE READING ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
FAXPANY				.1130*								
FAWARM												
FASPARD					-.0829*		-.1239*					
FAFLXBL										.0783		
MFASPMAT			-.1339*						.0690			
TFAISRD	.0555			.0880								
DIFFRM	.0885*			.1838*	.0637							
SSTXPECT	.0837*		.0815	.0957								.1156
SSHHRESR												
SSHHRESM				-.1061								
SSBELONG											.1055	
SSLELOC	.0616			.1299								
SSTWT			-.1135*									
GAINCLA												
GAINCLB												
GAINCLC												
GAINCLD												
Y255CA1	.0695*			.1471*					.0630			
Y255CB1												
Y255CC1	.0588								.0680			
Y255CD1					.0797*			.1424*				
SSINSTRT						.1368						
N	1566	305	637	624	1412	284	552	576	1075	225	420	430
R	.2648	.1871	.2452	.3487	.2027	.3023	.3059	.2364	.2179	.1749	.2269	.3053

APPENDIX H-19

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE MATHEMATICS ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
REGMBTXT										-.1462*		
REGMOTXT												
REGMDRLL			.0972		-.0832*							
REGMAVIS												
REGMBMCE			.1097*									
REGMBSKE												
REGMATTN									-.0612		-.1291*	
REGMTERM												
REGMMAT												
REGMTEST												
REGMADDI	.0577				.0685							-.1034
REGMSTD						-.1143						
PPCTITL1	.1308*	.2654*					-.1014		-.1370*	-.2293*		
SACTD												-.1176
PRATIO	-.0835*	.1114	-.0772	-.0883	-.0867*	-.1170			-.0734			-.1550*
TOTREAD	-.1166*			-.1947*	-.0973*		-.1459	-.1192				
TOTMATH	.0960*			.1180*	.1071*		.1873*	.1114	.0690			
$READ				.1381*					.2129*	.4153*		
$MATH								-.1255*		-.1196		
$TOTAL									-.0626			-.1162
ENROLL						.1425*						

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.
-Indicates variable had a significant coefficient in results of Year One Analyses but non-significant in present sample.

APPENDIX H-19 (CONT.)

SIGNIFICANT BETA COEFFICIENTS FOR BASIC SECONDARY SAMPLE MATHEMATICS ACHIEVEMENT: FORCED REGRESSIONS

Variables	Grade 10				Grade 11				Grade 12			
	Total	Low	Medium	High	Total	Low	Medium	High	Total	Low	Medium	High
FAXPANY												
FAWARM			.0803									
FASPARD												
FAFLXBL					-.0551							
SSINSTRT												
FASPMAT					.0705	.1186			.0946*	.1303	.1565*	
DIFFRM		.1744*	-.1077*			.1682	-.0925				-.2762*	-.2245*
SSTXPECT	.0815*			.0881					.0800	.1418*		
SSHHRESR				.1329*								
SSHRESM										.1144		
SSBELONG									.0649			.0997
SSLELOC												
SSTWT		.1124		-.1075		.1406			.0713	.1197		
GAINCLA	-.2239*		-.3563*								-.1883*	
GAINCLB		-.1373*		-.1792*	-.0871*		-.2094					-.3380*
GAINCLC									-.2225*	-.2469		
GAINCLD												
TFAISRD1									.0662			
TFAFLXBL						.1045		.1191*				
Y255CC1	-.0510		-.0800									
Y255CD1	.0702*	.1376			.0837*			.1795*				
N	1566	430	619	517	1412	385	545	472	1075	272	445	358
R	.3330	.4117	.4557	.3378	.2502	.3480	.3068	.3289	.3707	.6195	.3892	.4675

APPENDIX H-20. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN ANALYSES OF SCHOOL CLIMATE DATA

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
Scales and Test Scores			
Y2SCQA1 (Y2SCQA2)	Scale-Score	Pretest score School Climate Questionnaire Scale A: Teacher-Student Interaction (Posttest/Criterion Score)	
Y2SCQB1 (Y2SCQB2)	Scale-Score	Pretest score School Climate Questionnaire Scale B: (Elementary) Treatment by Principal (Secondary) Treatment by Administrators I (Posttest)	
Y2SCQC1 (Y2SCQC2)	Scale Score	Pretest score School Climate Questionnaire Scale C: Treatment by Administrator II (Posttest)	Defined only for secondary sample
Y2SCQD1 (Y2SCQD2)	Scale-Score	Pretest score School Climate Questionnaire Scale D: Index of Alienation (Posttest)	Defined only for secondary sample
Y2GAINR	Difference Score	Year 2 Gain in Reading Score	
Y2GAINM	Difference Score	Year 2 Gain in Mathematics Score	
Y2RTOT1	Test Score	Year 2 Total Reading Score (Pretest)	
Y2MTOT1	Test Score	Year 2 Total Mathematics Score (Pretest	
Instructional Program Characteristics			
$READ	Composite	Per-pupil supplemental expenditures in reading	
$MATH	Composite	Per-pupil supplemental expenditures in mathematics	

APPENDIX H-20. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN ANALYSES OF SCHOOL CLIMATE DATA (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
$TOTAL	Composite	Per-pupil total regular expenditures	
TOTREAD	Composite	Average of total weekly hours spent in reading instruction	
TOTMATH	Composite	Average of total weekly hours spent in mathematics instruction	
SLMNC01	Composite	Average weekly hours: Field Trips	
SLMNC02	Composite	Average weekly hours: Interracial Programs	
SLMNC03	Composite	Average weekly hours: Cultural Enrichment	
SLMNC04	Composite	Average weekly hours: Bilingual Activities	
SLMNC05	Composite	Average weekly hours: Group Counseling and Guidance	
SLMNC06	Composite	Average weekly hours: Individual Counseling and Guidance	
TOTOTHR	Composite	Average weekly hours: All non-academic activities	
District and School Characteristics			
DMINTCH	Single Item	Percentage of district instructional staff that belong to an ethnic minority group	
SACTD	Composite	Extent of desegregation-complementary activities (District Level)	Composite indicated frequency of district activities prior to and along with desegregation, such as media presentations, public meetings, etc.
PRATIO	Single Item	Pupil/teacher ratio in school	

APPENDIX H-20. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN ANALYSES OF SCHOOL CLIMATE DATA (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
ENROLL	Single Item	Total enrollment in school	
PPCT1TL1	Single Item	School SES level	Percentage of students estimated by principal to be economically disadvantaged (i.e., eligible for Title I funds)
PASEMDSG	Single Item	Number of school assemblies held on desegregation issues	
PBUSSIN	Single Item	Percentage of students bussed into the school	
PWHTLEFT	Single Item	Percentage of former student body who left school because of opposition to desegregation	
PHOTCOLD	Single Item	Principal's preference for style for motivating students	Categories were rank-ordered so that "high" reflected establishing a warm accepting climate for children, and "low" indicated rewarding specific academic/social behaviors.
PFLEX	Single Item	Principal's preference of teaching style	Categories were rank-ordered so that "high" reflected a flexible teaching approach, and "low" indicated a structured approach.
PORCOMED	Single Item	Principal's attitude toward compensatory educational programs	A high score indicates principal feels these programs are of value for his students
PATBUSS	Single Item	Principal's attitude on bussing as a means of school desegregation	A high score indicates an attitude favoring bussing
SSATCMED	Single Item	Superintendent's attitude toward compensatory educational programs	A high score indicates superintendent feels these programs are beneficial
SSATBUS	Single Item	Superintendent's attitude toward bussing as a means of school desegregation	A high score indicates an attitude favoring bussing

APPENDIX H-20. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN ANALYSES OF SCHOOL CLIMATE DATA (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
SSABOARD	Composite	Superintendent's statement of the attitude of the board of education on desegregation issues	A high score reflects an attitude favoring school desegregation
SSBELONG	Single-Item	Student belonging in school	Variable was dichotomized as belonging or not belonging
Teacher Characteristics			
TFAXPANY	Single-Item	Teaching experience in any school	
TFAWARM	Single-Item	Teaching style in motivating student	Categories were rank-ordered so that "high" reflected establishing a warm accepting climate for children, and "low" indicated rewarding specific academic/social behaviors
TFAFLXBL	Single-Item	Teaching philosophy	Categories were rank-ordered so that "high" reflected a flexible teaching approach, and "low" indicated a structured approach
TFACOMED	Single-Item	Teacher's attitude toward compensatory educational programs	A high score indicates the teacher believes the programs benefit the students
TFADSG1	Composite	Teacher's score on integration issues	Composite of three items (a high score indicates an attitude favorable to integration)
TFACLTIG	Composite	Teacher's attitude toward cultural enrichment programs	A high score indicates the teachers belief that the programs benefit the students
TMIXBW	Single-Item	Teacher's perception of the extent and quality of contacts between Black and White students in school	
TATSGWT	Single-Item	Teacher's perception of the attitude of White teachers toward school desegregation	A high score reflects a favorable attitude
TATSGMT	Single-Item	Teacher's perception of the attitude of minority teachers toward school desegregation	A high score reflects a favorable attitude

APPENDIX H-20. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN ANALYSES OF SCHOOL CLIMATE DATA (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
TATSGNB	Single-Item	Teacher's perception of the attitude of the school's neighborhood community toward school desegregation	A high score reflects a favorable attitude
ESTMIXC	Single-Item	Extent to which the individual student mixes with students of other ethnic groups in class activities	Reported by student's homeroom teacher
ESTMIXR	Single-Item	Extent to which the individual student mixes with students of other ethnic groups in recreation activities at the school	Reported by student's homeroom teacher
ESTXPECT	Single-Item	Teacher's expectation of the student's educational potential	
ESTWT	Single-Item	Student's ethnic indentification	Reported by the homeroom teacher for elementary students
PAED	Single-Item	Educational attainment of student's father	Reported by the homeroom teacher for elementary students
MAED	Single-Item	Educational attainment of student's mother	Reported by the homeroom teacher for elementary students
ESHHRESR	Composite	Resources in student's home related to reading	
ESHHRESM	Composite	Material resources of student's family (indirect SES measure)	
ESSXPECT	Single-Item	Student's self expressed educational expectations	Amount of formal education the student expects to complete
ESBELNG	Composite	Student's expressed feeling of identification with his school	
ESIELOC	Composite	Internal-external locus of control	Composite indicator of degree of internal orientation toward traditional locus-of-control items
ESLIKESC	Single-Item	Student's liking for his school	
ESTSUPP	Composite	Student's report of the degree of supportive teacher behaviors	Composite of four items reporting on the student's perception of the teacher responses to his classroom behaviors

APPENDIX H-21. SIGNIFICANT BETA COEFFICIENTS FOR REGRESSION ON SCHOOL CLIMATE OUTCOMES PILOT ELLMENTARY SAMPLE

Variables	Grade 3		Grade 4		Grade 5	
	Y2SCQA2	Y2SCQB2	Y2SCQA2	Y2SCQB2	Y2SCQA2	Y2SCQB2
Y2SCQA1	.242	.053	.359		.371	-.050
Y2SCQB1		.282		.309		.374
Y2GAINM					.065	
Y2RTOT1			.105			
Y2MTOT1		.118				
ESHHRESR				-.055		
ESHHRESM		-.066				
ESBELNG						-.049
ESTWT			-.065	.081		.087
ESSXPECT	.119		.149			
MAED				.052		
ESLIKESC	.108	.235	.163	.207	.142	.207
TFAXPANY	-.066					
TFAWARM		.128		-.070		
TFAFLXBL				-.052		-.087
$READ					.052	.155
$MATH					-.078	
$TOTAL						-.108
ENROLL		.198		.073		-.099
PPCT1TL1						-.086
PRATIO				-.093		
SACTD				.157		

APPENDIX H-21. SIGNIFICANT BETA COEFFICIENTS FOR REGRESSION ON SCHOOL CLIMATE OUTCOMES PILOT ELEMENTARY SAMPLE (CONT.)

Variables	Grade 3		Grade 4		Grade 5	
	Y2SCQA2	Y2SCQB2	Y2SCQA2	Y2SCQB2	Y2SCQA2	Y2SCQB2
PHOTCOLD	-.259					
PFLEX		.269		-.076		-.061
PATBUSS		-.141				
PATDSEI	-.070	.104	-.050	-.053		
ESTMIXC					.100	
ESTMIXR			-.196			.052
ESTSUPP	.375	.185	.099		.133	
TFACOMED	.093					
TFADSCI		.074				-.069
TMIXBW						-.079
TFACLTIG						.055
SATTDES		.067				-.095
DMINTCH	.089		.101	-.048		
TATSGMT		-.054				
TATSGNB		-.050				
PBUSIN						.133
SSATCMED			.074			
SSATBUS				.152		
SSABOARD			-.103			-.128
SLMNC01		.051				
SLMNC02		.083				
SLMNC03				.073		.056
TOTOTHR				.083		

APPENDIX H-22. SIGNIFICANT BETA COEFFICIENTS FOR REGRESSIONS ON SCHOOL CLIMATE OUTCOMES BASIC ELEMENTARY SAMPLE

Variable	Grade 3		Grade 4		Grade 5	
	Y2SCQA2	Y2SCQB2	Y2SCQA2	Y2SCQB2	Y2SCQA2	Y2SCQB2
Y2SCQA1	.297		.357		.400	
Y2SCQB1		.307	.039	.376		.377
Y2GAINM			.044			
Y2RTOT1		.099				
Y2MTOT1		-.102	.100		.062	
TOTREAD		-.066				.042
TOTMATH				.044		
ESTXPECT						.048
ESHHRESR	.038					
ESHHRESM		-.063	-089	-.084	-.052	-.072
ESBELNG				-.043		-.114
ESIELOC					.057	
ESTWT		.079		.060	-.069	
ESSXPECT	.097		.070			
PAED	.046					
MAED				.066		
ESLIKESC	.159	.194	.126	.208	.130	.176
TFAWARM	.039				-.049	
TFAFLXBL		.037				
$READ		.078				
$MATH			.044			-.085
ENROLL	-.084					

APPENDIX H-22. SIGNIFICANT BETA COEFFICIENTS FOR REGRESSIONS ON SCHOOL CLIMATE OUTCOMES BASIC ELEMENTARY SAMPLE (CONT.)

Variable	Grade 3		Grade 4		Grade 5	
	Y2SCQA2	Y2SCQB2	Y2SCQA2	Y2SCQB2	Y2SCQA2	Y2SCQB2
PPCT1TL1					.046	
PRATIO	.081			-.040		
SACTD			.039	.059	.053	
PHOTCOLD			.042	-.066		
PFLEX		-.060		-.056		
PORCOMED				.059		.041
PBIGOT					-.054	-.065
ESTMIXR		.039			-.128	
ESTSUPP	.079		.172		.187	
TMIXBW		-.042				.040
TFACLTIG			.045			
SATTDES		-.073				
DMINTCH			-.144			-.131
TATSGWT	-.043					
PASEMDSG				.061		
PBUSSIN		-.048		.042		
PWHTLEFT			-.048			
SSATCMEP		.051				
SSATBUS				.073		
SSABOARD				-.067		
SLMNCO1		.042				

APPENDIX H-22. SIGNIFICANT BETA COEFFICIENTS FOR REGRESSIONS ON SCHOOL CLIMATE OUTCOMES BASIC ELEMENTARY SAMPLE (CONT.)

Variable	Grade 3		Grade 4		Grade 5	
	Y2SCQA2	Y2SCQB2	Y2SCQA2	Y2SCQB2	Y2SCQA2	Y2SCQB2
SLMNC02	-.078					
SLMNC04	-.038				-.043	
SLMNC06	-.036			.068	-.050	

TABLE H-23. SIGNIFICANT BETA COEFFICIENTS FOR REGRESSIONS ON SCHOOL CLIMATE OUTCOMES BASIC SECONDARY SAMPLE

Variables	Grade 10				Grade 11				Grade 12			
	Y2ESQA2	Y2ESQB2	Y2ESQC2	Y2ESQD2	Y2ESQA2	Y2ESQB2	Y2ESQC2	Y2ESQD2	Y2ESQAD2	Y2ESQB2	Y2ESQC2	Y2ESQD2
Y2SCQA1	.277	.071		.060	.282	.060		.071	.235			
Y2SCQB1		-.287	.072			.316	.097		.064	.410		.099
Y2SCQC1		.074	.243		.047		.315		.086	.059	.538	
Y2SCQD1	.062		.092	.285	.067	.082		.30[illegible]	.086		.077	.327
Y2GAINR				.058				.065				
Y2RTOT1				.059	.070			.059				.104
Y2MTOT1		-.081										.076
TOTREAD					-.055							
ESTXPECT				.102								.137
ESHHRESR						-.107						
ESHHRESM	-.094	.055		-.304	-.066			-.053	-.164			
ESBELNG				.067	.059			.135		.097		.091
ESBELOC							.059					
ESTWT				.058					.091			
ESEDXPCT				.165			.083	.149				
ESLIKES	.087	.070		.182	.093	.079		.147	.080		.133	.178
TFAXPANY								.051				
$READ			.062									
$MATH											-.093	
$TOTAL							-.117					
ENROLL								.051				
PPCTITL1				.075			.121			-.079	.070	
PRATIO							-.092					
SACTD				.048						-.126		
PFLEX			.093	.064	.064		.052		.089			.058
PORCOMED						-.064		-.076				
PATBUSS							.065					
PBIGOT			-.056							-.084		
ESTSUPP	.224			.073	.226	.083	.059	.068	.279	.071		

APPENDIX H-23. SIGNIFICANT BETA COEFFICIENTS FOR REGRESSIONS ON SCHOOL CLIMATE OUTCOMES BASIC SECONDARY SAMPLE (CONT.)

Variables	Grade 10				Grade 11				Grade 12			
	Y2ESQA2	Y2ESQB2	Y2ESQC2	Y2ESQD2	Y2ESQA2	Y2ESQB2	Y2ESQC2	Y2ESQD2	Y2ESQAD2	Y2ESQB2	Y2ESQC2	Y2ESQD2
TFABIGOT			.068					.058	.068			.079
TMIXBW		.055				.059						
TFACLTIG								-.054				
SATTDES		-.117										
DMINTCH							-.135					
TATSGWT						-.079						
TATSGNB					-.049					-.058		
PASEMDSG	.064											
PBUSSIN								-.082				
PWHTLEFT	-.065						.061					
SSATCMED									-.062			
SSABOARD								-.057				
SLMNCO2										.073		
TOTOTHR	-.050										-.083	

APPENDIX H-24. IDENTIFICATION OF ITEMS USED IN CANONICAL ANALYSES

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
Desegregation Related Actions (District Level)			
SACTD	Composite	District activities to facilitate the desegregation process	Composite of four items on district action to facilitate desegregation, e.g., public meetings
DMINTCH	Single-Item	Percent of minority teachers in district	
Attitudes Toward Desegregation (School Administrators)			
SATTDES	Composite	Superintendent's attitude toward school desegregation	Composite of responses to three items about attitudes toward school desegregation, bussing and neighborhood schools
PATTDES	Composite	Principal's attitude toward school desegregation	Composite of responses to three items about attitudes toward school desegregation, bussing and neighborhood schools
Teacher Attitudes Toward Desegregation and Toward ESAA Related Programs			
TATCMPED	Single-Item	Teacher's belief in the effectiveness of compensatory education programs	
TATCULT	Composite	Teacher's belief in the importance of cultural enrichment programs	Composite of five items on aspects of cultural enrichment programs that are of value
TATINTG	Composite	Teacher's attitude on integration/desegregation	Composite of three Likert-type items on integrated housing, extent of prejudice and effectiveness of civil rights movement

APPENDIX H-24. IDENTIFICATION OF ITEMS USED IN CANONICAL ANALYSES (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
Measures of Degree of Integration within School and Classroom			
ESTMIXR	Single-Item	Extent to which students mix with students of other ethnic groups in recreational activities	Aggregation to school level of data obtained on the individual student
ESTMIXC	Single-Item	Extent to which students mix with students of other ethnic groups in classroom activities	Aggregation to school level of data obtained on the individual student
MIXB-W	Single-Item	Extent and quality of contacts between Black and White students in school	Aggregation to school level of data obtained from each teacher
Student's Attitude Toward School			
ESBELNG	Single-Item	Student's feeling of belonging at school	Aggregation to school level of six-item composite computed for each student
ESLIKESC	Composite	Degree of student's liking of school	Aggregation to school level of six-item composite computed for each student
ESSXPECT	Composite	Student educational expectations (how far he will go in school)	Aggregation to school level of two-item composite computed for each student
School Climate Outcomes			
Y2SCQA2	Scale Score	School Climate Posttest: Teacher-Student Interaction Scale	Individual score aggregated to the school level
Y2SCQB2	Scale Score	School Climate Posttest: Treatment by Principal Scale	Individual score aggregated to the school level

APPENDIX H-25. CANONICAL CORRELATIONS: SCHOOL ACTIONS WITH TEACHER ATTITUDES

Canonical Correlation 0.58	Chi-Square 26.26	Degrees of Freedom 12
	School Actions	
	District Desegregation-Related Activities	-0.43
	District Percentage Minority Teachers	0.60
	Superintendent Attitudes	-0.60
	Principal Attitudes	-0.26
	Teachers Attitudes	
	Teacher Attitudes: Compensatory Education	-0.20
	Teacher Attitudes: Cultural Enrichment	0.13
	Teacher Attitudes: Integration	0.93

APPENDIX H-26. CANONICAL CORRELATIONS OF SCHOOL ACTION, STAFF ATTITUDES, AND CLASSROOM INTEGRATION WITH STUDENT ATTITUDE TOWARD SCHOOL

Canonical Correlation 0.61	Chi-Square 51.38	Degrees of Freedom 30
	School Actions, Staff Attitudes, and Classroom Inegration	
	District Desegregation-Related Activities	-0.35
	District Percentage Minority Teachers	-0.01
	Superintendent Attitudes	-0.02
	Principal Attitudes	-0.33
	Teacher Attitudes: Compensatory Education	0.00
	Teacher Attitudes: Cultural Enrichment	0.23
	Teacher Attitudes: Integration	0.67
	Student Interracial Interactions: Recreation	1.03
	Student Interracial Internactions: Classroom	-0.90
	Black and White Student Interactions	0.90
	Student Attitudes Toward School	
	Students' Feeling of Belonging	0.56
	Students' Liking for School	1.23
	Students' Educational Expectations	

APPENDIX H-27. CANONICAL CORRELATIONS OF SCHOOL ACTION, STAFF ATTITUDES, AND CLASSROOM INTEGRATION WITH STUDENT ATTITUDE TOWARD SCHOOL

Canonical Correlation 0.64	Chi-Square 68.35	Degrees of Freedom 50
School Actions, Staff Attitudes, and Classroom Integration		
	District Desegregation-Related Activities	-0.31*
	District Percentage Minority Teachers	-0.50
	Superintendent Attitudes	-0.11
	Principal Attitudes	0.13
	Teacher Attitudes: Compensatory Education	-0.20
	Teacher Attitudes: Cultural Enrichment	0.42
	Teacher Attitudes: Integration	0.71
	Student Interracial Interactions: Recreation	0.89
	Student Interracial Interactions: Classroom	-0.74
	Black and White Student Interactions	0.17
Student Attitudes Toward School		
	Students' Feeling of Belonging	0.30
	Students' Liking for School	0.81
	Students' Educational Expectations	0.46
	SCQ: Teacher-Student Interaction Scale	-0.72
	SCQ: Treatment by Principal Scale	0.53

*Note: The signs of all coefficients have been reversed.

APPENDIX H-28. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN THE LONGITUDINAL REGRESSION ANALYSES

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
Year I Scores			
Y1$READ Y1$MATH	Composite	Per-pupil expenditures in reading and in math (School)	Composite indicated total supplemental dollars-per-pupil spent in reading and in math in the school
Y1TOTRD	Composite	Total reading exposure	Composite indicated average total weekly reading exposure (hours)
Y1SLR02 Y1SRLR06 Y1SLR07	Composites	Exposure to activities of: tutoring by older person, diagnostic test-taking, independent seat exercise	Composites indicated the average weekly proportion of time spent in each activity relative to the total average weekly amount of time spent in reading
Reading Program Characteristics			
Y1GRWORD	Composite	Exposure to word attack skills activities	Word attack activities included matching letters or words, learning letter names, and developing whole word recognitions
Y1GRGLBL	Composite	Emphasis on objectives related to global skills	Global skills objectives included improving verabl communication, and developing study skills and library skills
Y1GRMED	Composite	Frequency of occurrence of small/medium sized adult-student groups	Small groups comprised adult(s) and students in groups of between 2 and 10; medium groups comprised between 11 and 20
Y1GRLING	Single-Item	Use of linguistic-phonetic teaching approach	Variable was dichotomized as using the linguistic-phonetic approach versus using other approaches
Y1GRTEST	Single-Item	Frequency of diagnostic testing	
Y1GRDIAG	Single-Item	Extent to which diagnostic testing was used to guide instruction	

APPENDIX H-28. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN THE LONGITUDINAL REGRESSION ANALYSES (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
Y1GRSIZE	Single-Item	Reading class size	
Y1GRAIDS	Single-Item	Frequency of teacher use of paraprofessionals or teacher aides	
Y1GRPROF	Composite	Frequency of teacher use of professional staff resources	Professional resources included remedial reading teacher, counselor or psychologist, media specialist, and resource teacher.
Y1GRNPRF	Composite	Frequency of teacher use of non-professional resources	Non-professional resources included teacher aide, parent or other volunteer, student teacher, and student in school
Y1GRMAT	Single-Item	Degree of teacher influence in selecting instructional materials	
Math Program Characteristics Y1TOTMT	Composite	Total math exposure	Composite indicated average total weekly math exposure (hours)
Y1SLM02 Y1SLM05 Y1SLM07	Composites	Exposure to activities of: tutoring by older person games/contests diagnostic test-taking	Composites indicated the average weekly proportion of time spent in each activity relative to the total average weekly amount of time spent in math
Y1GMBTXT Y1GMOTXT Y1GMDRLL Y1GMAVIS	Single-Items	Frequency of use of instructional resources: Basic texts Materials other than basic texts Drill and practice material Audio-visual material.	
Y1GMBMCE	Composite	Exposure to basic math concepts	Math concepts included math vocabulary, number concepts, symbols and rules, equations and verbal problem-solving
Y1GMBSKE	Composite	Exposure to basic skills	Basic skills included fundamental operations and drill

APPENDIX H-28. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN THE LONGITUDINAL REGRESSION ANALYSES (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
Y1GMATTN	Single-Item	Emphasis on increasing attention span	
Y1GMTERM	Single-Item	Emphasis on learning terminology	
Y1GMMAT	Composite	Teacher resourcefulness	Composite indicated the number of instructional materials generated by the teacher
Y1GMTEST	Single-Item	Frequency of diagnostic testing	
Y1GMADDI	Single-Item	Extent to which diagnostic testing was used to guide instruction	
Teacher Characteristics Y1AXPANY	Single-Item	Teaching experience in any school	
Y1AWARM	Single-Item	Teaching style in motivating student	Categories were rank-ordered so that "high" reflected establishing a warm accepting climate for children, and "low" indicated rewarding specific academic/social behaviors
Y1AFLXBL	Single-Item	Teaching philosophy	Categories were rank-ordered so that "high" reflected a flexible teaching approach, and "low" indicated a structured approach
Y1AISRD	Single-Item	Inservice training in reading	Variable was dichotomized as having received inservice training in reading versus no training
Y1ASPRD	Single-Item	Recency of special training in reading	
Y1ASPMT	Single-Item	Recency of special training in reading	
Student Characteristics Y1SXPECT	Single-Item	Student's self expressed educational expectations	

APPENDIX H-28. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN THE LONGITUDINAL REGRESSION ANALYSES (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
DLIKESC	Change Score	Student's self expressed liking for school	Difference between Year I and Year II score values
DTSUPP	Change Score	Student's perception of the extent of the teachers supportive behavior	Difference between Year I and Year II score values
DTMIXC	Change Score	Extent to which student mixes with students of ethnic groups in class activities	Difference between Year I and Year II score values
DTMIXR	Change Score	Extent to which student mixes with students of ethnic groups in school recreational activities	Difference between Year I and Year II score values
Stable Characteristics Y2$TOTAL	Composite	Per-pupil expenditures (District)	Composite indicated total regular dollars-per-pupil expenditures in the district
Y2ENROLL	Single-Item	Total school enrollment	
Y2PCTTL1	Single-Item	School SES Level	Variable indicated the percentage of students etimated by the principal to be economically disadvantaged (i.e., eligible for Title I funds)
Y2RATIO	Single-Item	Pupil/teacher ratio of school	
Y2PATBUS	Single-Item	Principal's attitude toward bussing to eliminate desegregation	
Y2PATRI	Composite	Principal's socre on an integration-desegregation index	Composite of three items on attitudes to integration issues
Y2TATRI	Composite	Teacher's score on an integration-desegregation index	Composite of three items on attitudes to integration issues
Y2HHRESR Y2HHRESM	Composite	Reading-related household resources Material goods/household resources (indirect measure of SES)	Composites.indicated the number of reading-related or material goods/household resources present in the home.
Y2ESTWT	Single-Item	Student-reported ethnicity	Variable was dichotomized as Thie or non-White

APPENDIX H-28. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN THE LONGITUDINAL REGRESSION ANALYSES (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
DGMBMCE	Change Score	Exposure to basic math concepts	Difference between Year I and Year II score values
DGMBSKE	Change Score	Exposure to basic skills	Difference between Year I and Year II score values
DGMATTN	Change Score	Emphasis on increasing attention span	Difference between Year I and Year II score values
DGMMAT	Change Score	Teacher resourcefulness	Difference between Year I and Year II score values
DGMTEST	Change Score	Frequency of diagnostic testing	Difference between Year I and Year II score values
Teacher Characteristics			
PAXPANY	Change Score	Teaching experience in any school	Difference between Year I and Year II score values
DAWARM	Change Score	Teaching style in motivating student	Difference between Year I and Year II score values
DAFLXBL	Change Score	Teaching philosophy	Difference between Year I and Year II score values
DAISRD	Change Score	Inservice training in reading	Difference between Year I and Year II score values
DASPRD	Change Score	Recency of special training in reading	Difference between Year I and Year II score values
DASPMT	Change Score	Recency of special traaining in mathematics	Difference between Year I and Year II score values
DSXPECT	Single-Item	Student's self expressed educational expectations	Difference between Year I and Year II score values
DTXPECT	Change Score	Teacher's educational expectations for students	Difference between Year I and Year II score values
DIELOC	Change Score	Internal-external locus-of-control	Difference between Year I and Year II score values
DBELNG	Change Score	Student belonging in school	Difference between Year I and Year II score values

APPENDIX H-28. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN THE LONGITUDINAL REGRESSION ANALYSES (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
DGRMED	Change Score	Frequency of occurrence of small/ medium-sized adult-student groups	Difference between Year I and Year II score values
Y1GRLING	Change Score	Use of linguistic-phonetic teaching approach	Difference between Year I and Year II score values
DGRTEST	Change Score	Frequency of diagnostic testing	Difference between Year I and Year II score values
DGRIAG	Change Score	Extent to which diagnostic testing was used to guide instruction	Difference between Year I and Year II score values
DGRSIZE	Change Score	Reading class size	Difference between Year I and Year II score values
DGRAIDS	Change Score	Frequency of teacher use of paraprofesiionals or teacher aides	Difference between Year I and Year II score values
DGRPROF	Change Score	Frequency of teacher use of professional staff resources	Difference between Year I and Year II score values
DGRNPRF	Change Score	Frequency of teacher use of non-professional resources	Difference between Year I and Year II score values
DGRMAT	Change Score	Degree of teacher influence in selecting instructional materials	Difference between Year I and Year II score values
Math Program Characteristics DTOTMT	Change Score	Total math exposure	Difference between Year I and Year II score values
DSLM02 DSLM05 DSLM07	Change Score	Exposure to activities of: tutoring by older person games/contests diagnostic test-taking	Difference between Year I and Year II score values
DGMBTXT	Change Score	Frequency of use of instructional resources: Basic texts Materials other than basic texts Drill and practice material Audio-vosual material	Difference between Year I and Year II score values

APPENDIX H-28. IDENTIFICATION OF VARIABLES/MNEMONICS USED IN THE LONGITUDINAL REGRESSION ANALYSES (CONT.)

Variable/Mnemonic	Indicator Type	Identification of Attribute/Dimension	Comments
Y1IELOC	Composite	Internal-external locus-of-control	Composite indicated the extent of internal orientation toward traditional locus-of-control items
Y1BELNG	Single-Item	Student belonging in school	Variable was dichotomized as belonging or not belonging
Y1LIKESC	Composite	Student's self expressed liking for school	Composite of four student questionnaire items
Y1TSUPP	Composite	Student's perception of the extent of the teachers supportive behavior	Combination of four items reflecting how the student perceives the teacher's behavior toward him
Y1TMIXC	Single-Item	Extent to which student mixes with students of ethnic groups in class activities	Reported by student's homeroom teacher
Y1TMIXR	Single-Item	Extent to which student mixes with students of ethnic groups in school recreational activities	Reported by student's homeroom teacher
Change Scores			
D$READ D$MATH	Change Scores	Per-pupil expenditures in reading and in math (School)	Difference between Year I and Year II score values
DTOTRD	Change Score	Total reading exposure	
DSLR02	Change Score	Exposure to activities to: tutoring by older person diagnostic test-taking independent seat exercise	
Reading Program Characteristics			
DGRWORD	Change Score	Exposure to word attach skills activities	Difference between Year I and Year II score values
DGRCOMP	Change Score	Emphasis on objectives related to comprehension skills	Difference between Year I and Year II score values
DERGLBL	Change Score	Emphasis on objectives related to global skills	Difference between Year I and Year II score values

APPENDIX H-29. SIGNIFICANT BETA COEFFICIENTS FOR LONGITUDINAL ELEMENTARY SAMPLES
READING ACHIEVEMENT: RESIDUAL GAIN SCORES

Variable	Basic		Pilot	
	Grade 3/4	Grade 4/5	Grade 3/4	Grade 4/5
Y1$READ			-.074*	
Y1SLR06	-.052			
Y1SLR07		-.059	-.231*	
Y1TOTRD				.196*
Y1TOTMT			.122	
Y1GRAIDS	-.050	-.051		
Y1AFLXBL			-.133*	-.1[illegible]3
Y1AISRD				.10[illegible]
Y1GRCOMP	-.077*		-.098	
Y1GRTEST		.056		
Y1SIZE				.400*
Y1GRNPRF				-.119
Y1IELOC	.117			
Y1LIKESC				-.114
Y1SXPECT				.127*
Y1BELNG				.107
Y1TXPECT	.209*	.296*		.383*
D$READ	.068*	-.128*		
DSLR02		-.064	-.148	
DSLR06				-.246*
DSLR07		-.204		
DTOTREAD	-.077*			
DGRWORD	.051			
DSPRD	.074*			
DGRSIZE			-.154	.183*
DRWARM	.046			
DTMIXC		-.042		
DTMIXR			.092	
DTXPECT	.092*	.109*		.140
DBELNG		-.062		
DLIKESC	.054			
DIELOC	.103*	.052		
Y2PATRUS			.171*	
Y2TATRI			-.147*	
Y2ESTWT	.063*	.070*		
Y2ENROLL		.088*		
Y2HHRESM		-.044		
N	1938	2003	550	358
R	.3072	.3842	.3861	.5463
R^2	.0943	.1476	.1491	.2984

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.

APPENDIX H-30. SIGNIFICANT BETA COEFFICIENTS FOR LONGITUDINAL ELEMENTARY SAMPLES MATHEMATICS ACHIEVEMENT: RESIDUAL GAIN SCORES

Variable	Basic		Pilot	
	Grade 3/4	Grade 4/5	Grade 3/4	Grade 4/5
Y1SLMOS	.142*	.065*		
Y1SLMO5			.133*	
Y1SLM06	.052			
Y1GMBTXT		.080*		.252*
Y1GMAVIS		-.049		
Y1GMBSKE			.163*	
Y1GMATTN		.087*		
Y1GMMAT	-.052			
Y1GMTEST			-.155*	
Y1GMADDI		.073*		
Y1GMSTD				.137*
Y1AWARM		.065*	-.115*	
Y1AFLXBL		.068*		-.161*
Y1ASONAT		.067*		
Y1TXPECT	.185*	.226*	.094	.328*
Y1SXPECT			.081	
Y2FSTWT	.061		-.173*	
DSLM06				-.270*
DTOTREAD	-.137*			
DTOTMATH	.115*			
DSMATH	.088*			
DTXPECT	.109*	.103*		.153*
DBELNG		-.042		
DIELOC		-.058*		
DTMIXC		-.042		
DLIKESC		.068	.105	
D2GMDRLL				.129
D2GMBMCE		.082*	-.106	
D2GMBSKE		-.069*		
D2GMTERM	.057	-.051		
D2GMSTD		-.062*		
Y2$TOTAL		-.096*	-.220*	
Y2ENROLL				-.228*
Y2RTI05	.047	.055		
Y2PATBUS			.158*	-.193*
Y2PATRI			-.117	-.175*
Y2TATRI			-.102	.115
YILIKESC		.098*	.142*	
N	1929	2010	523	348
R	.2575	.3491	.4374	.5483
R^2	.0663	.1219	.1913	.3006

*Indicates beta is significant at 0.01 level. All other values significant at 0.05 level.